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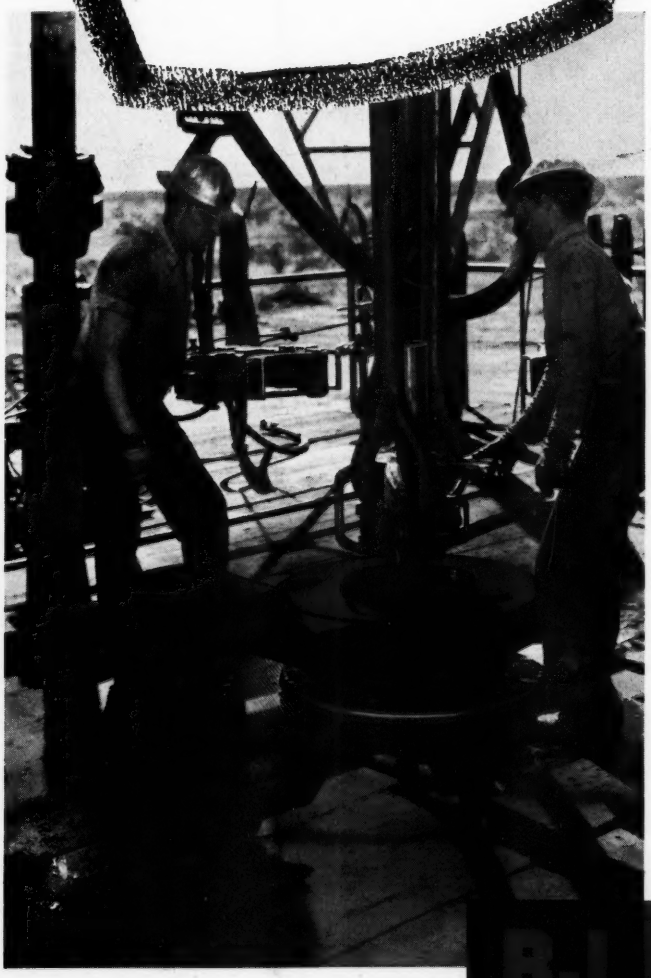

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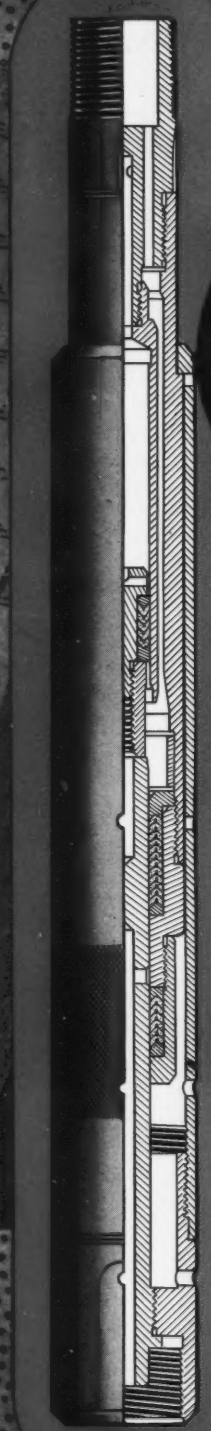

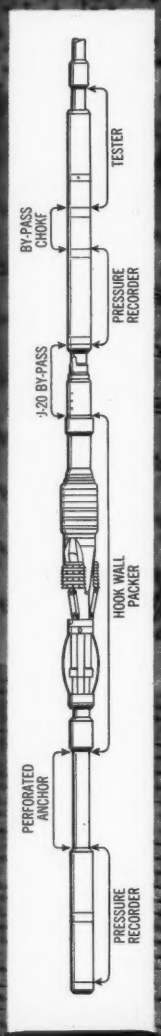

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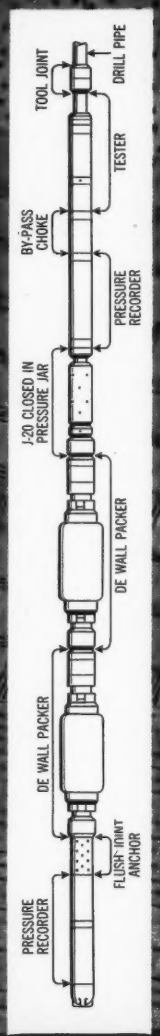

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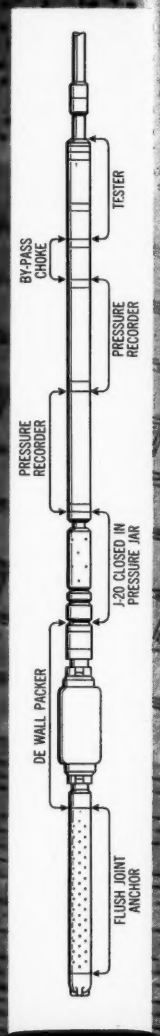

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MEMBER AUDIT BUREAU OF CIRCULATIONS
W. C. MONROE—President and Editor
LARRY O. MILLER, Advertising Manager
FRED JONES, Chicago Manager
228 No. La Salle St., Chicago 1, Ill.

2404 WEST 7th ST.
LOS ANGELES 5, CALIFORNIA
KINZIE MILLER—Vice President

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402 Swetland Bldg., Cleveland 15, Ohio

The McKeown Company—New York Representatives
342 Madison Avenue, New York, N. Y.

SECOND ISSUE
JANUARY, 1951
VOL. 44 • NO. 2
WHOLE NO. 1816

California Oil World is published twice a month at 2404 West 7th St., Los Angeles 5, California. Entered as Second-Class Matter, April 29th, 1944, at the post office at Los Angeles, California, under the Act of March 3, 1879. Subscription price $1 per year in U. S. and possessions, $2 in foreign countries, including Canada. Member of the Audit Bureau of Circulations.

January 31st, 1951
Telephone DUnkirk 2-6218

Washington Highlights

Bruce K. Brown, PAD Deputy Administrator discloses that a complete survey of oil transportation will be inaugurated in the near future by the PAD to determine which of a number of proposed pipeline projects are more indispensable to the interests of national defense and the domestic economy.

The Interior Department's Bureau of Land Management apparently will withhold granting of more leases on national forest lands in the Santa Barbara front country. This will hold true until further study of any effect oil activities may have on watershed protection, fire danger and scenic values.

The Secretary of the Interior and the Petroleum Administration for Defense continue responsible for the oil and gas industries under an Executive Order issued by President Truman, establishing the Defense Production Administration with powers similar to the War Production Board in the second World War. The Executive Order requires that the PAD will be the primary point of Government contact for nation's petroleum and gas industries.

Introduced in the Senate soon will be new legislation giving the Federal Government what is termed as emergency authority to administer the oil-rich submerged lands along the coasts. According to Senator O'Mahoney, Senate Interior Committee, the measure has been made necessary by the decision of the Supreme Court that the United States has paramount rights to tidal waters off the coasts of California, Texas and Louisiana. Under a measure proposed the Interior Secretary could lease offshore oil lands for development with no provision of any royalty payment to coastal states. Such legislation would grant interim authority for oil exploration and development while Congress is giving thought to permanent laws.

El Paso Natural Gas Company has filed an application with the Federal Power Commission to increase the capacity of its pipeline system by 400,000,000 cubic ft. of natural gas daily. This is part of a designated $83,000,000 construction program. Present company plans call for delivering 150,000,000 cubic ft. of the additional gas to the Southern California Gas Company-Southern Counties Gas Company combination, 150,000,000 cubic ft. to Pacific Gas & Electric Company and 100,000,000 cubic ft. to other buyers in New Mexico, Arizona and Texas. A clear course for delivery to the California utilities would be completed by November, 1952, in the event of FPC approval.

Under terms of a bill passed by the House and sent to the Senate, California motorists would be permitted to deduct for Federal income tax purposes, state taxes on gasoline imposed on the wholesaler and passed on to the consumer. The present law allows state gasoline taxes to be deducted only at the retail level. The bill, authored by Representative King, Democrat of California, would permit taxpayers in six or seven states, where the gas tax is imposed on the wholesaler, to deduct such state taxes as is done now in the rest of the states.

The U. S. Navy announced here that it will reopen its ammunition depot at Seal Beach together with supply facilities. The facilities are needed to support operations of the Pacific fleet.

Herbert A. Bergson has been appointed general counsel of the Office of Defense Mobilization, the nation's leading defense agency. Bergson resigned from the Justice Department last fall. Since that time he has been conducting private practice in Washington.

A dual strike of oil and helium gas has been scored by Continental Oil Company in the Table Mesa field on the Navajo Indian Reservation in the northwest corner of New Mexico. The well came in for 190 barrels of 52 gravity crude oil and 9,100,000 cubic ft. of gas through a 28/64-in. choke. The gas has a high nitrogen content. The field is about 12 miles southeast of the Rattlesnake field where the Federal Government owns helium reserves purchased some years ago from Continental, the Santa Fe Corporation and the Navajo tribe.

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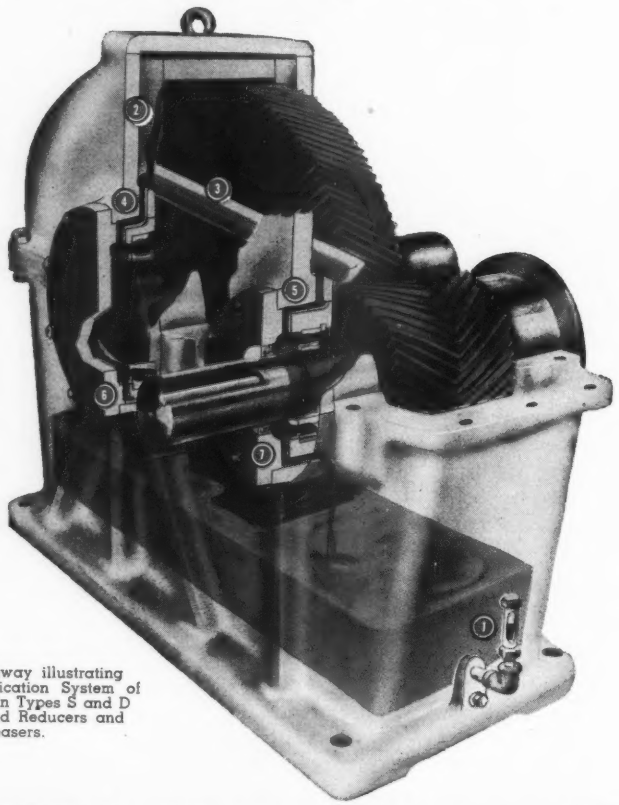

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Gas Injection Project Temblor Zone Kettleman North Dome Field

Abstract:

The authors present a summary of the production and gas injection history of the Temblor Pool in the Kettleman North Dome Field, Kings and Fresno Counties, California. The field has a length of approximately 14 miles, a width of two miles, a closure of 2,000 feet above the oil-water contact, and a productive area of approximately 16,000 acres. The Temblor Pool is composed of five main zones, characterized by thick, lenticular sand sections and a wide range of permeabilities, averaging approximately 131 md., with a 0.8 variation factor.

A total of 335 wells is involved in the project, and oil production to January 1, 1950, has totalled 335,-900,000 barrels. The pool was discovered in 1928 and a volume equivalent to 66.8% of the gas produced since 1942 has been injected into the reservoir.

After 7½ years of operation under gas injection, the project appears to be successful. It is expected that the recovery of crude oil and other liquid products will be substantially higher than with conventional depletion practice. Other favorable aspects of the program are more uniform, sustained production rates and lower lifting costs resulting from the higher reservoir pressure.

By
D. R. KNOWLTON
and
R. W. MASTERS*

Introduction:

The Kettleman Hills consists of three anticlines: North Dome, Middle Dome and South Dome, which lie en echelon for about 30 miles along the west side of the southern San Joaquin Valley, trending southeastward from the Coalinga Nose. This paper is concerned only with North Dome which lies in Kings and Fresno Counties in Townships T21S, R17E; T22S, R17E; T22S, R18E., M.D.B.&M. (See figure 1)

As early as 1910 the Kettleman Hills were described as "possible productive territory" by Arnold and Anderson.(1) Several wells were drilled to test the shallower formations but it was not until November 1928 that the first commercial well, Milham Exploration Company, Elliott One, was completed in the Temblor Zone on Section 2P. Initial production of about 4100 B/D of 59° API oil and 77,000 Mcf/D of gas indicated a rich discovery of oil and gas.

Development of the Kettleman Zones

After the initial discovery, drilling by the various operators became very active, and, a short time later, 32 drilling strings were in operation. By agreement (2) (3) on July 25, 1929, the Kettleman operators suspended all drilling wells after reaching the top of the Temblor until conclusions could be reached regarding several basic issues concerning development and production. This agreement continued until the end of March 1931 at which time the Kettleman North Dome Association was formed by unitizing Government acreage in the field. Control and development of the field then was almost uniformly checkerboarded between the K.N.D.A., controlling all of the even numbered sections of the field, and the Standard Oil Company of California, controlling all of the odd numbered sections except for some acreage in Section 29J, called the "competitive area" and, in and near Section 35J, called the "Felix area." Development proceeded rapidly in the low gas-oil ratio area of the north end offsetting the operators of the competitive area. Active development of the south end did not begin until 1937, nine years after the discovery. By this time it was apparent that

*Mr. Knowlton is Reservoir Engineer for Kettleman North Dome Association.
Mr. Masters is Production Engineer for Standard Oil Company of California at Kettleman.

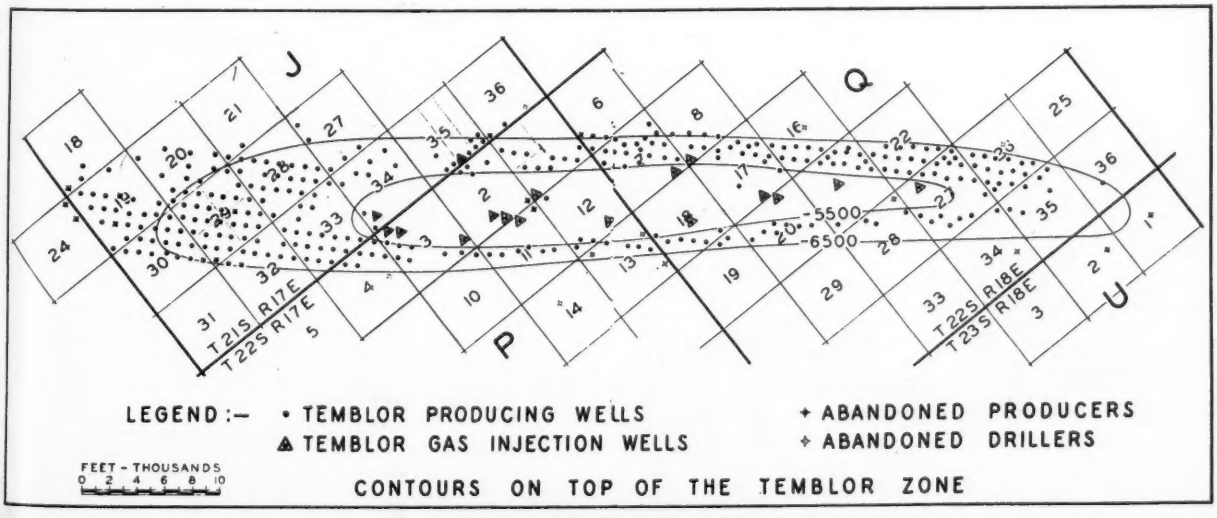

Fig. 1. Kettleman Hills North Dome Temblor Zone.

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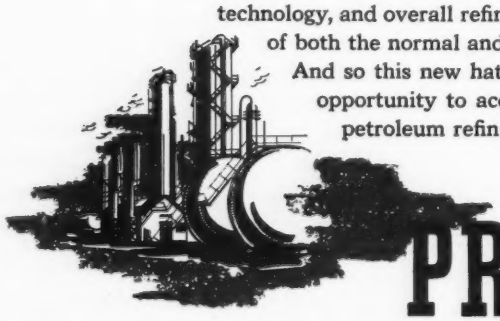

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heavy withdrawals of oil and gas in the competitive area in the northern part of the field had caused a pronounced pressure sink, inducing migration of oil and gas from the south to the north end.

Structure and Stratigraphy

The field is approximately 14 miles long, 2 miles wide in the central part, and covers an area of approximately 16,000 acres. The anticlinal fold is asymmetrical with dips on the northeastern flank averaging 30 degrees; whereas, the dips on the southwestern flank range from 45 to 60 degrees.

Early development soon indicated that the Temblor interval could be divided into five main zones each having individual characteristics. Figure 2 is a typical electric log of the Temblor Zones. In 1938, the Vaqueros Zone, sometimes called Zone VI, was recognized. This zone had been included in some of the early Temblor completions, but was not isolated until 1941. In general, production from the Vaqueros Zone has been segregated from the Temblor because of the pressure difference. Also in 1938 the McAdams sand of Eocene age was discovered which is essentially a high pressure condensate reservoir.

The subsurface stratigraphy of Kettleman Hills is shown below.

No faults have been found in the Temblor Zone, although there are numerous surface faults. Geologic and electric log correlations through the Temblor formations show a high degree of structural uniformity, but there is considerable lenticularity of the individual sands.

Reservoir Characteristics

Early development of the Temblor Pool indicated the presence of an original gas-cap in all five zones. Producing characteristics of individual wells clearly defined the gas-oil interface in these zones. Oil produced from the gas cap averaged 60° API gravity, with a gas-oil ratio of 25,000 cu.ft. per barrel; whereas, oil produced down-structure averaged 35° API gravity with a gas-oil ratio of less than 1000 cubic feet per barrel. It was later determined that the ratio of the total gas cap volume to the oil band volume was approximately 2 to 3.

In 1935, a joint research laboratory was established at Kettleman by Standard Oil Company of California and the Kettleman North Dome Association. Temblor oil and gas samples were run to determine PVT data and to obtain the type of information most useful for proper development and production practice. It was determined that the original formation volume factor, at 3140 psia at 7,000 feet subsea, was 1.404, and that the original solution ratio was 724 cubic feet per barrel.

During early field development and prior to 1939, no core analyses data were obtained. Since 1939 an insufficient number of wells have been cored to accurately determine the average permeability of a reservoir of this size. Indicated average air permeability from available core data is 131 md. and is the result of weighing a wide range of values. The permeability variation of the Temblor Zone was derived by treating the core data from all zones as a single group. The result of this calculation indicates a permeability variation factor of 0.8, as shown on

(1) Figures in parentheses refer to references at end of report.

Subsurface Section in Kettleman Hills (4) (5)

Age	Formation	Approximate Thickness, Feet	Lithology	Remarks
Pliocene	Undifferentiated Etchegoin and Jacalitos	3600-5000	Sandy shale, clay shale, and sand	
Miocene	Reef Ridge	600-800	Blue clays and fine sands	
	McLure	1200-2000	Brown shale, gray shale and sand; bentonite near base	
	Temblor	1200-2000	Sandstone, sandy shale, shale and siltstone	Includes Temblor zones I-V. Zones and sub-zones are separated by shale and siltstone.
	Vaqueros	350-650	Sandstone, sandy shale, shale and siltstone; Whepley shale over most of area	Includes Vaqueros Zone (Beal Zone or Zone VI)
Oligocene and Eocene	Kreyenhagen	1200+	Mainly brown shale	
Eocene	McAdams	1000+	Sandstone, shale, and siltstone	Includes Upper & Lower McAdams zones

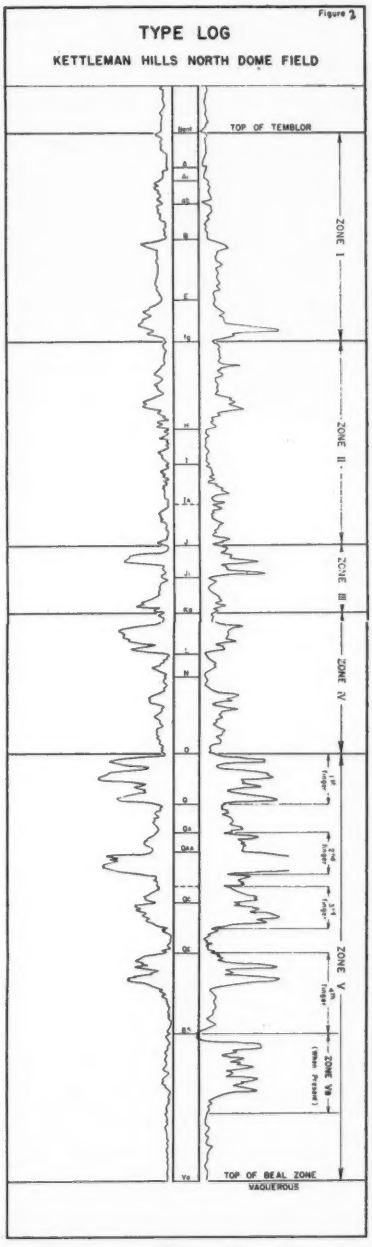

Figure 2

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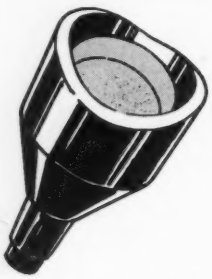

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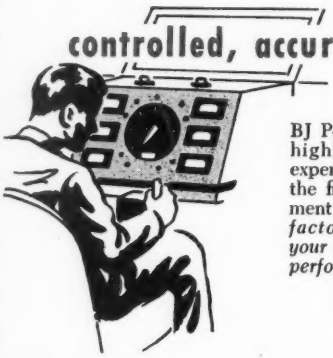

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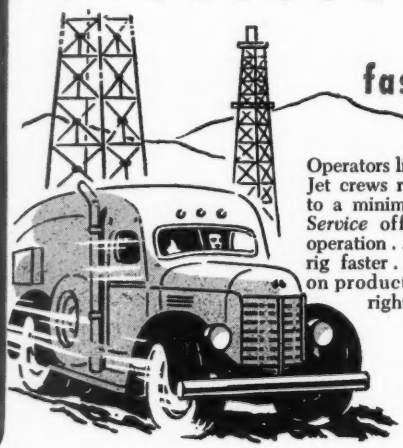

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Figure 4. The concept of this factor as a measure of sand nonuniformity was developed by Jan Law (6). Because of the more uniform nature of porosity, it is believed that the average of 17.0% obtained by core analysis is probably representative of the reservoir. Based on oil-base cores and capillary equilibrium data, it is estimated that the average connate water saturation is 26% (see figure 3).

Producing Characteristics

Early completions in the Temblor Zone were prolific producers due to the high pressures and the large intervals open to production. Many wells were completed with all five zones open to production through a perforated liner of 1600 feet. Wells completed in the gas cap, were capable of 80,000 Mcf/D production or, if completed in the oil band, were able to produce 10,000 to 20,000 B/D of oil. However, as edgewater began to encroach upon the reservoir in individual sands, the undesirability of multiple zone completion soon became apparent. After scabbing of perforations proved unsuccessful, the practice of cementing blank sections between zones came in vogue and as many as six blank sections were cemented in some wells. This method was used extensively in later south end development where it has also proved very useful in gas exclusion work. More recently, in new and redrill wells, completions have been in specific fingers which are known to be clean.

Analyses of the different Kettleman zonal waters have been obtained since early development and extensive use has been made of this information in tracing encroaching zone waters. Water maps, indicating the structural position of edgewater in zones and sub-zones, are very helpful in planning remedial work and in anticipating changes in producing equipment. Gas-oil interface maps are kept as a means of following the advance of the gas cap.

Producing wells, completed by the different means of accomplishing various degrees of zonal segregation, offer a variety of problems and many different types of producing equipment are employed. In many instances, pressures are no longer sufficient for flowing production and some form of artificial lift is required in numerous wells. High-head formation waters in some wells make it difficult to draw down on the oil zones and high-output intermittent gas lift equipment is required. Other wells require the largest pumps available to handle the large volume of water production. In some wells, poor gas separation interferes with pump operation. Corrosion has become a problem.

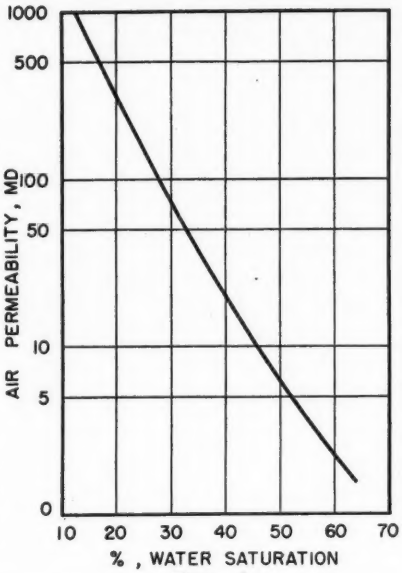


Figure 3

Productive capacities vary from 15 B/D oil and 500 B/D water in some wells to 800 B/D clean oil in other wells. The following is the status of current Temblor zone wells:

Flowing Wells	51
Gas Lift Wells	94
Pumping (Kobe & Rod)	77
Injection	17
Shut-in, non-commercial or suspended	96
Total	335

Average production per well is 115 B/D oil, 92 B/D water, and 693 Mcf/D gas.

The daily gas and oil production rates of the Temblor Zone are shown by months on Figure 5.

Initiation of Injection

As a means of increasing recovery, consideration was given to the return to the reservoir of a portion of the produced gas. The first injection experiments, which began in April 1938 when 16,436 Mcf of gas were injected, were of a gas drive nature since the injection was done low on the structure in the oil band. Additional experiments were started in December of the same year; however, full scale injection was not instigated until 1942. From this date a volume of gas equivalent to 66.8% of the total gas produced since December 1942 has been returned to the formation.

During the middle of 1942 a significant reservoir trend developed which indicated that benefits could be derived from injection. Previously, in the competitive area of the north end, the pressure sink due to heavy withdrawa[1] had been deepening. North end oil production had been declining at a rapid rate due to the decreased rate of oil producibility at the lower pressures. However, during 1942, pressures in the north end showed a definite increase. This increase was not limited to the competitive area, where pressures were as low as 250 psi, but was general over the north end, indicating that some external force was at work and that the effect was not a local equalization of pressures. The obvious conclusion was that, at the low oil rates, the north end gas production had declined by the middle of 1942 at a rate lower than the gas migration rate from the higher pressure south end and this influx of gas, combined with edgewater movement, was repressuring the north end. This fortuitous situation could not long remain a major reservoir factor. Large scale injection in the north end began in December 1942 to supplement the natural reservoir forces and pressures rose gradually for several years; north end oil production increased as the rate of oil producibility increased with higher pressures.

Large scale injection in the south end which began in November 1942 did not result in any marked changes in producing characteristics, but a decrease in the rate of pressure decline was noted.

Early experience led to the natural conclusion that in a field with a large gas cap and with closure as great as that at Kettleman Hills, the injection of gas should be into the gas cap and not into the oil band. This was evidenced when gas injected into the oil band migrated

rapidly up-structure. This up-structure migration was undesirable as it might force oil into the gas cap, a part of which would then be non-recoverable. Therefore, injection of gas into the gas cap will be more beneficial. Water encroachment is a factor in this field but it is believed that the same net benefit from encroachment will be obtained whether injection is being resorted to or not.

Gas-Oil Ratio Behavior

Cumulative gas production to January 1, 1950 has been 1,764,330,-023 Mcf., at a gas-oil ratio of 5251 cu. ft./bbl.

The relative permeability ratio (K_g/K_o) as shown on Figure 6, is calculated from field data. This ratio is a measure of gas-oil ratio behavior. Contrary to the usual trend, this ratio initially showed a decline even though the total liquid saturation of the oil band decreased, as it reflected the decline in gas cap production and an increase in low ratio oil production. The subsequent increase and then decrease probably is due to a decline in oil production followed by a concerted effort by the operators to reduce gas production. The increase in the K_g/K_o ratio following injection is to be anticipated. It is significant, however, that most of this increase is attributable to the south end where the narrow band of oil is located close to the high pressure gas cap. In the north end, the gas oil ratio increase has been slight, due to the greater extent of the oil band and the greater distance that injection gas must travel. Additional factors have been the development of low ratio production in low pressure sands and the continuing recompletion of high gas-oil ratio wells which has excluded a large volume of gas production.

Location of Injection

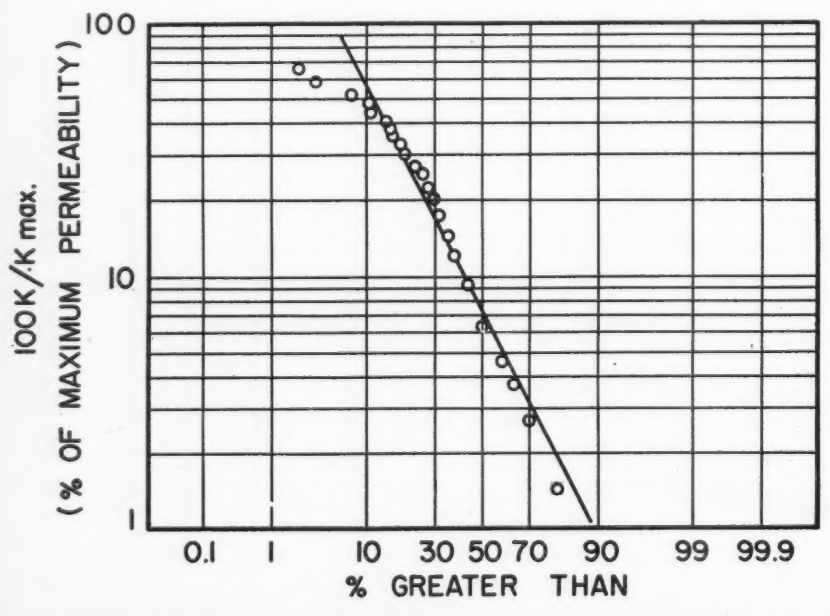
During the early development of the field, a number of wells had been drilled into the original gas cap, which provides a density and distribution suitable for a reasonable injection pattern. By confining the injection to the gas cap it is possible to sweep on a broad front toward the oil-band. Although early pilot injection tests were conducted in the oil band, in Sections 19J and 20J, this injection as well as some other oil band injection has been discontinued.

Detailed maps have been prepared of each zone and sub-zone, delineating areas of reduced permeability and individual zone continuity. These data, combined with gas-oil interface, edgewater, and producing well completion data are used to aid in the selection of injection locations which will insure, in each zone, the maximum sweep efficiency from the injected gas. Changes in the injection program are necessary from time to time to insure that the various zones receive their proportionate share of gas. However, due to multi-zone completions, it is not always possible to balance withdrawals from a specific zone with the desired volume of injection gas.

Rates of Injection

Since initiation of the injection project, a cumulative total of 283,-583,982 Mcf. of gas has been injected into the Temblor reservoir to January 1, 1950. During 1943, a volume equivalent to 53.5% of the gas produced in that year was returned to the reservoir. This rate was gradually increased, reaching 80.1% during 1949, and has averaged 66.8% during the interval. The greater part of this volume has been supplied by the gas accompanying the condensate production of the McAdams Zone, since tubing head pressures are sufficient for direct injection. During the 7½ years of major injection, an average pool injection rate of 108,500 Mcf/day has been maintained for an average per well injection rate of 7750 Mcf/day. Individual well injection rates have been as high as 18,000 Mcf/day and continuous rates of 16,000 Mcf/day have been common. Injection pressures, even at the high rates, have not been excessive, because of the amount of zone perforated, or as in the case of Zones II and III, the high relative permeability of the sands. These pressures have ranged from 800 to 1800 psig, and are dependent upon the zone injected into and the volumes being injected. However, most of the injection wells are not very sensitive to rates and only a few changes in injection characteristics have been noted, even after 7 years of continuous use. Some changes in injection pressures seem to be correlative with the water vapor content of the gas, and it appears advantageous to remove all water before injecting.

Before direct injection of the McAdams gas, the condensate production is cooled and stripped of the major portion of its gasoline. It was fortunate that this source of high pressure gas was available



PERMEABILITY DISTRIBUTION OF TEMBLOR ZONE

Figure 4

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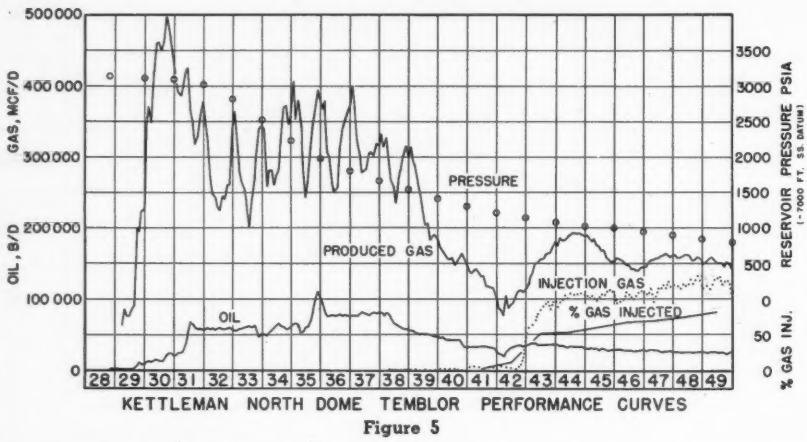

GAS, MCF/D
OIL, B/D
RESERVOIR PRESSURE PSIA
(-7000 FT. SS DATUM)
% GAS INJ.
PRESSURE
PRODUCED GAS
INJECTION GAS
% GAS INJECTED
OIL
28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49
KETTLEMAN NORTH DOME TEMBLOR PERFORMANCE CURVES

Figure 5

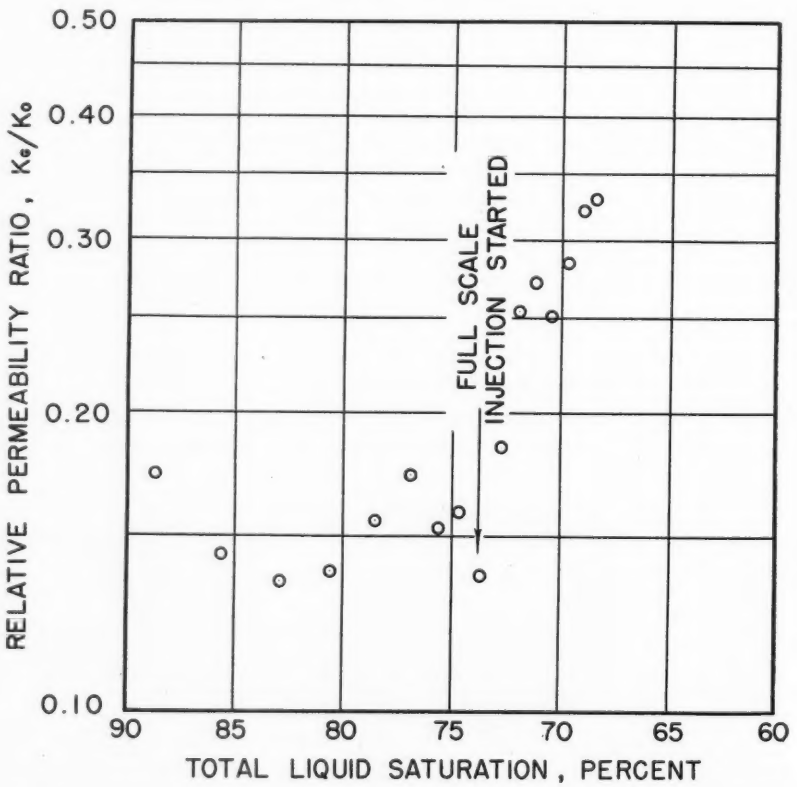
during the war years when it is improbable that compressors could have been procured for the injection of 60,000 to 110,000 Mcf/day of dry gas. To date, the major part of the injection project has been carried on by K.N.D.A. and Standard Oil Company although other operators have joined the project for short periods of time.

Gas By-Passing or Selective Gas Movement

The usage of the term "by-passing" in connection with the study of the expansion of a gas cap is to be discouraged. "By-pass" means to pass around and beyond or to make a circuit. This does not describe the passage of gas through a sand of varying permeability. Gas will selectively move more rapidly in the most permeable finger but it is not "circuiting" the less permeable sands; it is merely moving more slowly in these sands. Thus, the movement is selective and the degree of selection depends upon the reservoir characteristics. The important factors involved are: (1) mobility ratio, (2) pressure differential, (3) permeability variation, (4) liquid saturation, and (5) gravity segregation. Variations in the differential pressure across reservoir sands will cause a selective movement of gas but this can be minimized by injecting into sands of uniform pressure. The effect of permeability variation on the selective movement of fluids has been discussed in detail by Standing, Lindblad, and Parsons ([7]). Variations in the liquid saturation will cause a selective movement but control of injection to provide a uniform expansion of the gas cap will tend to counteract this effect. Gravity migration of gas up-structure can be prevented by injecting in the gas cap and not in the oil band.

In the Temblor Zone, the most convenient method of studying directional gas movement has been by the use of methane-ethane ratios of the produced gas, obtained from fractional analyses, in conjunction with well production data. Practically all of the gas injected to date has been from the Eocene reservoir, and as this gas has a methane-ethane ratio differing from that of the original Temblor gas it forms the basis for studying gas movement. Where there are sufficient data, this method is very successful, but due to the number of multiple zone completions, it is not always possible to determine to which zone or sub-zone the produced injection gas may be attributed. Another method for studying gas migration is the observation of gas-oil ratio trends. Though this method is subject to the same limitations as the use of methane-ethane ratios, data are available for all wells at all dates.

Initial injection to Zone II in the 19J and 20J area, being of an experimental nature, was watched with interest, and a large number of gas samples were analyzed for methane-ethane ratio from 1941-1944. By this means it was possible to follow the fluid movement closely and to draw annual limits of the movement of the injected gas. The direction of movement has been determined



RELATIVE PERMEABILITY FROM FIELD PERFORMANCE

Figure 6

largely by the differential pressure between the area of injection and Section 29J, and also to some extent by the tendency of the lighter injection gas to move up structure.

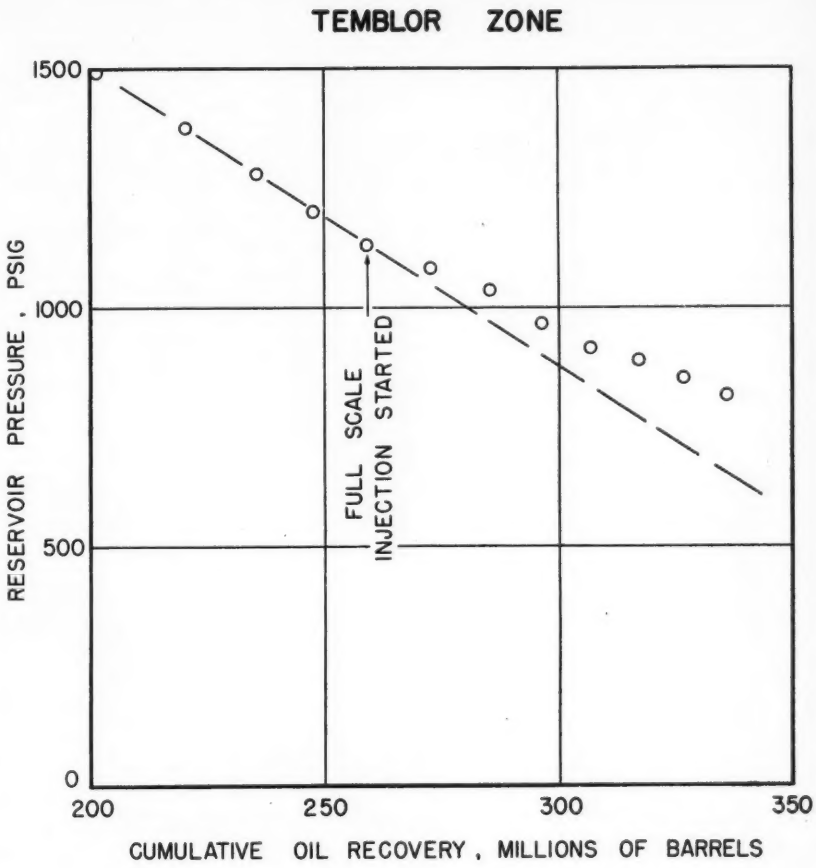
Study of the continuity of sands has been helpful in tracing movements of injected gas. In Zone II, in the south end, there has been a tendency for the gas to move largely toward the flanks of the reservoir, due to a band of thin and silty sands, found to be trending along the center of the field.

Zone IV has been interesting in that it appears to be the only one in which gas has migrated to the outer limit of the field. No edgewater movement has been observed in this zone which might account for this condition.

Zone V has lent itself to the study of directional fluid movement more readily than any other zone; due largely to the appreciable number of single zone completions in this interval. In the middle and northern parts of the field, annual limits of the movement of gas injected into Zones II and V have been drawn. Attempts to delineate limits of the injected gas for the other zones have been inconclusive. Gas migration has been most rapid in the first finger of Zone V. Determination of the migration pattern of the lower intervals of Zone V is difficult as these sands are usually produced along with the first finger. Gas injected in Zone V in other parts of the field appears to have migrated rather uniformly, at least in the first finger, which is continuous throughout the field.

It is difficult to determine, with any precision, the magnitude of fluid movements in the reservoir that can be attributed directly to the injection program. However, the methane-ethane ratio of produced gas has indicated an apparent rate of horizontal expansion, in the gas cap area, of 200 feet per year in Zones II and V. During the brief interval that gas was injected into the oil band, the apparent expansion of the secondary gas cap occurred at a rate of approximately 100 feet per year at low rates of injection.

The above data are used in controlling the injection program and injection volumes have been reduced in areas where they appear excessive. This has the advantage of varying the injection pattern which can considerably increase sweep efficiency over that for a fixed injection pattern. Periodic changes in the location of injection wells and the gas injection rates result in a corresponding change in the direction of flow, and consequently bring about a resultant movement of oil toward producing wells that would not have existed under a fixed injection pattern. To facilitate changes in the injection pattern periodic pressure, temperature, and flow surveys are made.



PRESSURE - RECOVERY RELATIONSHIP

Figure 7

Control of the Injection Program

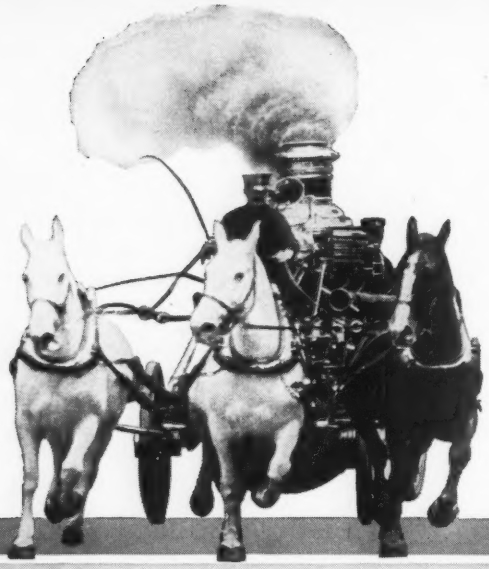
To assure efficient conduct of the injection operations and to obtain the maximum benefits from the injection gas, it is necessary to compile and interpret basic reservoir data throughout the life of the project. For this reason, a detailed control program has been established for the gathering of data for the study of reservoir pressures, gas-oil interface and oil-water interface movements, and production and injection trends.

Mention has already been made of the effect that the method of field operation has had upon the shape of K_g/K_o curve based upon Temblor performance data. Thus, the K_g/K_o curve is an important indicator of reservoir behavior and its trend is followed closely.

A large volume of depth pressure data ([8]) has been obtained from Kettleman Hills wells, dating back to 1933. These data have been used for production problems and allocation purposes as well as for reservoir engineering. Periodically, these data have been analyzed and average reservoir pressures calculated at a 7,000' BSL datum.

In order to interpret pressure data more critically, a key well system was adopted in 1944, and pressures

(Continued on page 31)



The Horses are under the Hood!

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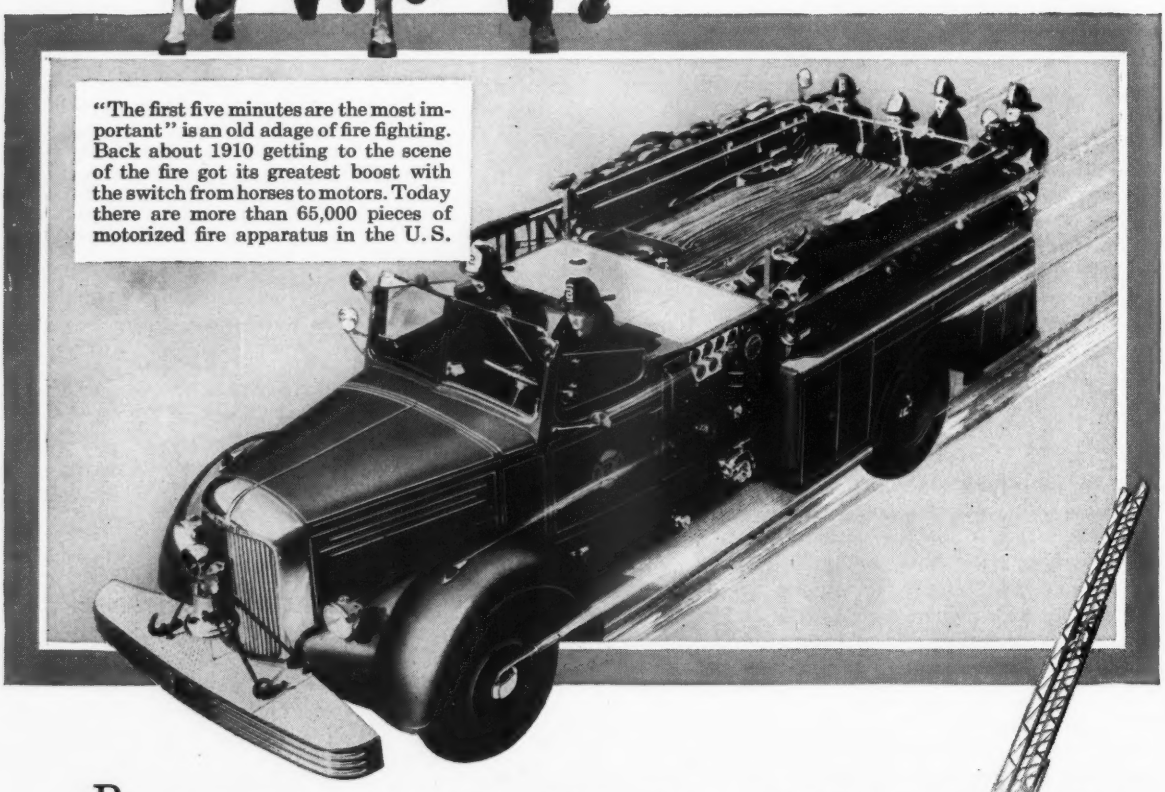

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Field Development

Los Angeles Basin

Capistrano Test Planned

Historic and picturesque San Juan Capistrano has been singled out for an interesting exploratory well. The search for oil will be undertaken by Black Gold Oil Company, which announced that it plans to spud its Black Gold No. 1 well in the middle of February. Drilling will be on the 200-acre Forster and Magg lease on Sec. 11-8s-8w, Orange County. The lease extends over from Sec. 11 into Sec. 12. Two earlier test wells in the area were known as O. K. Carr No. 1 and No. 2. Drill site for No. 1 was midway between the town of San Juan Capistrano and Capistrano Beach, three miles away. No. 2 was approximately 300 feet from location of the first test. These two wells are credited with good showings of gas near 2000 ft. and oil signs at intervals to about 5200 ft. Mineral Exploration Company also drilled in the area without achieving commercial production success. Many years ago the Southern California Railroad laid tracks from Los Angeles to San Diego. The company at this time drilled for water in the area now in line for testing. At some 500 ft. oil is said to have showed in enough amount to spoil the water. After casing off at that depth, the hole was carried on down to about 800 ft. and then abandoned when gas and oil contaminated water emanating from a lower formation. One of California's largest operators is understood to have leased considerable ground in the area. The land involved takes in sites of the two Carr wildcats drilled 25 years ago. Smaller companies also are interested in the area generally. In the San Joaquin Hills of Orange County, Shell Oil Company's Irvine Ranch One No. 166-1 is drilling ahead below 6300 ft. on Sec. 11-7s-9w. The company's Irvine Four No. 51-130 on Sec. 5-7s-9w at Corona Del Mar is digging at 3920 ft.

Torrance Rigs Upset

Stormy weather recently in the general Los Angeles area toppled about 20 derricks in the Torrance-Redondo oil field. A freak wind apparently cut a narrow swath through the field from Redondo Beach to Wilmington. Falling derricks interferred with power facilities in the district and cut electricity from both residential sectors and from wells. A wind of such velocity was last seen in the field some 10 years ago.

Aliso Canyon Well Working

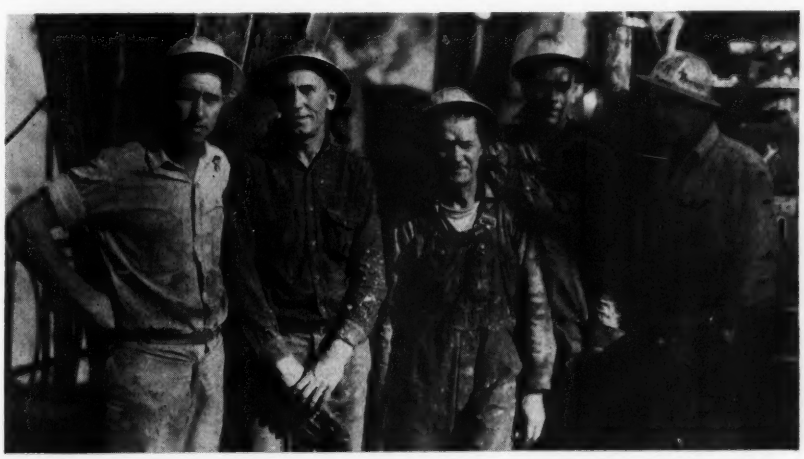
Nearing the completion stage is Carlton Beal's Mission-Adrian No. 3 well on Sec. 34-3n-16w in the Aliso Canyon field. The hole at last reports was down 7880 ft. and casing set. Standard Oil is rigging its Del Aliso No. 1-7 on Sec. 29-3n-16w.

Calabasas Test Works

At Calabasas in Los Angeles County, F. G. Anderson's Mabel No. 1 exploratory venture is drilling at 3390 ft. on Sec. 23-1n-18w. Drilling has reached 2470 ft. in the W. W. Bush wildcat known as Bush Bar No. 1 at Batholomaus Canyon, Sec. 6-2n-14w.

Bandini Test Drills Ahead

In the Bandini sector of Maywood, Union Oil's CCMO No. 1 is digging deeper at 3342 ft. on Sec. 18-2s-12w. Those familiar with the area would not be surprised if Union uncorks new oil there. General Petroleum's Kruse No. 1 wildcat on Sec. 8-2s-11w in the Whittier Narrows area is drilling on down. Depth last reported was 5025 ft.



Tidewater-Associated's well Porter No. 50 in the Aliso Canyon Field. Left to right: A. Gaynor, racker; V. Pollock, lead tong; S. C. Friddle, cathead; N. M. Workman, derrick; T. R. Tunnel, driller.

Del Valle
Try Drills

In the Del Valle area of Los Angeles County, Pacific Western Oil Corporation's Encinas Fee No. 1 test well continues to go deeper at 7270 ft. on Sec. 20-4n-17w. At Seal Beach, J. I. M. Petroleum's Rosamond & Taylor No. 1 test is a location on Sec. 3-5s-12w.

Paradise Ranch
Wildcat Drilling

On the Paradise Ranch in the Castaic area, the F. G. Walker, Operator, Mary Austin No. 1 exploratory well is drilling on down below 2650 ft. Indications are that the project will drill to at least 3500 ft. It is located on Sec. 28-6n-17w. George Atha is engineer.

East Coyote
Well Starting

Bartholomae Corporation has started work on its Stearns No. 22 well on Sec. 22-3s-10w in the field at East Coyote. Union Oil's Sunny Hills No. 8 on Sec. 21-3s-10w is coring at 6085 ft.

Del Valle
Job Digging

Drilling has reached 1560 ft. in Southern California Petroleum's Vasquez No. 3 on Sec. 21-4n-17w in the Del Valle field. Union Oil Company's Barnes No. 12 is nearing the spudding stage on Sec. 16-4n-17w. Standard Oil has foundation in for Sepulveda No. 19 on Sec. 8-4n-17w.

Santa Fe
Job Pumps

In the Santa Fe Springs field on Sec. 5-3s-11w, General Petroleum Corporation's S. F. No. 20 has been recompleted on the pump for 90 barrels a day from 4004 ft.

Oak Canyon
Test Deeper

Prospect drilling is going forward at 7180 ft. in Humble Oil and Refining Company's N. L. & F. No. B-1 on Sec. 12-4n-17w in the Oak Canyon area. At Castaic Creek, Humble and British-American Oil Producing are drilling at 6161 feet with their No. C-1 on Sec. 1-4n-17w. Humble's N. L. & F. No. 4 on Sec. 19-4n-16w at Castaic is drilling at 7444 ft. Texas Company, meanwhile, is drilling in the shallower formation in its Honor Rancho No. 3 on Sec. 6-4n-16w. The company's Shofner No. 1 test on Sec. 6-2s-11w at South Montebello has gone beyond the 5800-ft. mark.

Saugus
Try Digs

On the William G. Bonelli Ranch in the Saugus area, Superior Oil Company is drilling at 3890 ft. with its No. 1 wildcat on Sec. 23-4n-16w on a lease of substantial proportions. Location is not quite a mile due east of the Lytle Exploration Company Newhall Land & Farming No. 1, which was abandoned a year ago as a duster at 9736 ft. In the Loma Verde area, Trigood Oil Company has started its Ayala No. 1 test on Sec. 29-5n-17w. The company's Barbour No. 2 test at Del Valle on Sec. 16-4n-17w has been completed on the pump at a plugged depth of 7145 ft. Total bottom is 7345 ft. Representative gauge was yet to be established as this was set down.

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Coastal and Northern District

Solvang Test Starting Work

Humble Oil & Refining Company has commenced work on its Florence F. Selby No. 1 wildcat venture on Sec. 14-6n-31w in the Solvang area of Santa Barbara County. Drill site is about 7 miles northeast of where Ohio Oil Company drilled its Alisal Ranch No. 1 last April to an unproductive 2819 ft. The Selby project also is approximately 4 miles southeast of a well drilled by Frank Buttram to 2309 ft. It bottomed in Serpentine formation and found no shows. In the Carpinteria area, Imperial Gypsum & Oil Corporation's Bailard No. 1 on Sec. 34-4n-25w went on the pump for a yield of water and a trace of oil. The well may be deepened from present bottom at 702 ft. Laguna Oil Company is about to move in equipment for its Laguna No. 1 test on Sec. 15-7n-30w near Zaca Creek in the Los Olivos area. Location is about 30 miles northwest of the city of Santa Barbara and nearest production is in the Zaca field a little more than three miles away. Tide Water Associated Oil Company is building a new marine terminal station at Alcatraz Landing near Gaviota Pass. It is designed to provide facilities for moving heavy crude oils from the Zaca field to the company's refineries by tankship. When completed the terminal will have a pumping capacity of 7000 barrels an hour to ships offshore. Tide Water Associated's No. 1 test on Sec. 36-9n-32w in the Tinaquaic area near Foxen Canyon has been completed on the pump at 3646 ft. Casing is cemented at 3305 ft. Accurate gauge of the well's production capacity was not available at this writing.

Reyes Peak Wildcat Digs

Near the top of Reyes Peak in Ventura County, Standard Oil of California has reached 3300 ft. with its Hattie Russell No. 1 test on Sec. 11-6n-23w. Surface string was run to 3000 ft. The venture took the first bite of ground last October 2 and since that time drilling has been necessarily slow due to loss of circulation and fractured shale. Now showings apparently have been logged to the present, but the well is likely to go to 10,000 ft. or more for a thorough test.

Oxnard Job Starts Work

Oxnard Oil & Refining Company has started work on its Todd No. 3 well in the Oxnard field, Sec. 6-1n-21w, Ventura County. Ojai Oil Company's No. 9-A in the Ojai field is ready for the final touch at 1607 ft.

Sespe Wells Drill Ahead

Coast Supply Company, Inc., of Long Beach, founded by the late Dick Mitchell, has spudded its No. 1 well on Sec. 32-5n-19w in the Sespe area. H. A. Ivers' No. 15 on Sec. 14-4n-20w is digging at 350 ft. In the Santa

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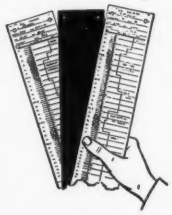

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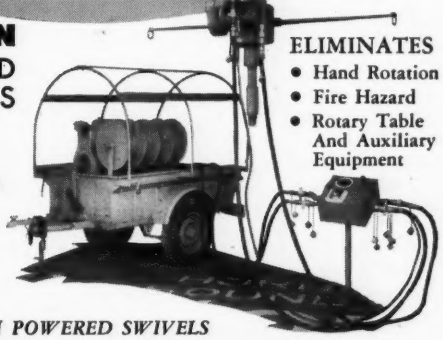

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Paula area, Santa Paula Drilling & Development Company's Paula No. 4 is making hole ahead at 965 ft. on Sec. 22-4n-21w.

Santa Maria Well Completed

Hancock Oil and General Petroleum have recompleted Wylie No. 9 in the Santa Maria field for 91 barrels of oil a day, cutting 24 per cent from 5090 ft. The well was formerly a Hancock and Bush Oil enterprise and under the present combination was redrilled and deepened.

Rio Vista Well Fails

Having shown very little gas, Shafer-Loudon No. 2 well in the Rio Vista field has been abandoned by Standard Oil Company. The well, on Sec. 16-3n-3e, went to a total depth of 6661 ft.

Smith Canyon Wildcat Works

Following a cessation of drilling operations due to torrential rains, Oceanic Oil Company has resumed work around 1000 ft. in its Smith Canyon No. 1 well on Sec. 32-4n-18w, Ventura County. Standard Oil's McGrath No. 148-12 test on Sec. 26-2n-23w has been redrilled to 11,831 ft. and is now reaming. The project went to an original bottom of 12,110 ft.

Red Mountain Try Redrilling

Redrilling operations have reached 1725 ft. in the Amerada Petroleum Corporation R. C. No. 1 on Sec. 10-3n-24w at Red Mountain, Ventura County. The hole was carried first to 4067 ft., before it was plugged back to 1526 ft. for a fresh start. In the Sisar-Silverthread area, Jergins Oil's Hillside No. 1 test on Sec. 8-4n-21w is down 7081 ft. and fishing for lost drill pipe. Bestco Petroleum Company's Frey No. 1 is a location on Sec. 2-3n-19w at Shiells Canyon. Lloyd Corporation has added another producer in the Ventura Avenue area. Its Sexton No. 2 on Sec. 19-3n-22w is putting out 455 barrels of 33.8 gravity oil and 394,000 cubic ft. of gas daily from a plugged depth of 12,255 ft. A 14/64-in. orifice is in use. Total bottom is 12,611 ft. The company has spudded its W. S. No. 1 on Sec. 20-3n-22w.

Parkfield Test Grades

Ground is being graded for British American Oil Producing Company's Jack Ranch No. 1 wildcat well in the Parkfield area, Sec. 12-24s-15e Monterey County. At San Ardo, Standard of California's Alexander No. 85-9 on Sec. 9-23s-11e has been written off at 2815 ft. as a duster. Texas Company has staked locations for three new drilling jobs at San Ardo. They are Labarere No. 3 and Dudley No. 4 and No. 5 and all on Sec. 3-23s-10e.

Yolo County Wildcat Spuds

A new wildcat has been spudded in by D. D. Feldman on Sec. 13-8n-1w in the northwest Winters area of Yolo County. The test is known as Woodward & Reynolds Unit No. 8-1 and is about five-eighths of a mile southwest of Western Gulf's explorer which was drilled to 5184 ft. in a natural gas hunt. This earlier test found showings around 2800 ft. but they failed to produce satisfactorily on formation trial. The new Feldman well is probably being drilled as a result of geologic information from the Western Gulf well. In Solano County, Sunray Oil Corporation's Manka Comm. One No. 1 on Sec. 4-5n-2w in the Manka Anticline area at last reports was down below 7000 ft.

Orland Try Quits

Abandoned at 3735 ft. was the official report from Standard Oil of California's Orland Comm. No. 2-1 wildcat well on Sec. 31-23n-2w in the Orland area, Tehama County. Buttes Oilfields, Inc. has location staked for No. 8-A on Sec. 31-24n-3w in the Corning area.

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Cuyama Valley Venture Blowing

Yield last reported from the Hancock Oil Company Hancock-Bishop No. 33-31 in the Taylor Canyon area in northwest Cuyama Valley was 440 barrels of 40.2 gravity oil and 200,000 cubic ft. of gas a day. In use was a 26/64-in. choke. The well went to a total bottom of 5974 ft., but was finaled at a plugged depth of 5855 ft. The new producer is the first successful offset job to the Hancock-Bishop discovery scored in the area last fall. Hancock, meanwhile, has started the drill in its Hancock-Bishop No. 22-31 on the section. In the Morales sector, Southern California Petroleum's new Shlaudeman No. 9-10 on Sec. 10-11n-28w is putting out 133 barrels a day from an effective depth of 2314 ft. No. 10-10 on the section is going down at 1240 ft.

Tejon Hills Test Flowing

Standard Oil has completed its Tejon Ranch No. 57-21 on Sec. 21-11n-18w in the Tejon Hills area. The well came in flowing at an excellent rate from a plugged depth of 1025 ft., but was shut in before accurately gauged. At any rate, the project, on land leased from Reserve Oil & Gas Company, was more than ordinarily successful in pouring out crude oil, all reports agreed.

Salt Creek Test Delayed

Rig to start operations is being awaited by Carneros Oil Company. Location is on Sec. 19-29s-21e for the company's Anderson Comm. No. 5 at Salt Creek, Kern County. Kova Pet. Association has location for Kova-Pet. No. 1 at Comanche Point on Sec. 32-32s-30e.

Chowchilla Test Spudded

Union Oil's Los Nietos Company will try for a north and south extension of the Chowchilla gas area in Madera County with its Chowchilla Farms No. 54-17 on Sec. 17-10n-14e and its Southern Realty No. 55-31 on Sec. 31-9s-14e, Madera County. The former has spudded and is making rapid time through the shallower formations. Pure Oil Company opened up a gas production in the area more than 15 years ago. Six miles northwest of Raisin City in the southeast Gill Ranch area, Signal Petroleum Company of California has abandoned its Janss No. 1 on Sec. 31-13s-17e. The well found nothing of commercial importance to 5500 ft. Hancock Oil and British American Oil Producing Company are among operators with land in the area.

Coles Levee Well Stakes

Kern County Land Company, whose oil career heretofore has been concentrated on the royalty end of the business, is about to enter the producing branch of the oil industry. With this in mind the company has staked location for its KCY No. 56-12 at the far southeast border of the Coles Levee field on Sec. 12-31s-25e. The company's only previous sortie into the operating branch of oil industry was about a year ago when it clasped hands with Superior Oil Company for a brace of drilling jobs in the Gosford field. In calling the new well KCY, the company sought to properly designate its own drilling activities from its lease operation which are tagged KCL wells. D. D. Feldman, meantime, has started work on his BVA No. 85-8 on Sec. 8-31s-25e.

Arvin Test On Calendar

Texas Company's Kovacevich No. 1 on Sec. 27-31s-29e in the Arvin area is proceeding toward the spudding aspect. Location is on a 640-acre farmout from Ohio Oil Company and about a mile and one-quarter from the nearest production. It will probably go to a minimum depth of 12,000 ft. Texaco's Di Giorgio No. 1 on Sec. 3-31s-29e at South Mountain View has been given up at 5063 ft. in granite.

McKittrick Wildcat Digs

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is drilling at 3640 ft. with its Van Wert No. 68-26 test well. It is going down on Sec. 26-30s-22e on ground midway between production at Midway-Sunset and the Elk Hills field. Standard Oil Company, Operator, is drilling at and spot coring at 8400 ft. with UONPR No. X-55-30s on Sec. 30-30s-23e at Elk Hills. Standard is still working its Mushrush No. 2 on Sec. 7-27s-24e in the Wasco area. Drilled to a total depth of 15,500 ft. some mechanical troubles have delayed final completion.

Fruitvale Well Rigging

On the west border of the Fruitvale field, Campbell & Shell are about ready to spud KCL-B No. 9 on Sec. 28-29s-27e. The J. A. Waters Company J. A. Waters No. 1 on Sec. 15-29s-27e is digging at 3675 ft.

Terra Bella Wildcat Digs

On Sec. 22-28s-27e at Terra Bella in Tulare County, Congress Petroleum Company's interesting exploratory venture continues to twirl an inquisitive bit at 680 ft.

San Benito Wildcats Dig

At East Lonoank in San Benito County, Texas Company's Eade No. 1 has reached 7075 ft. and is reaming on Sec. 12-19s-10e. On the Ciervo Anticline, Monte Del Ciervo Oil Company's Eleanor No. 1 is grading ground on Sec. 28-16s-12e. In the Lomerias area, formerly known as the Sargent area, Jack Herley, Operator, is engaged with preliminary work on O'Connell No. 3 on Sec. 4-12s-4e.

McDonald Try Drills

Glenn Ferguson and I. W. Bosworth are drilling at 1640 ft. with Layman No. 4 test on Sec. 18-28s-20e in the McDonald Anticline area, Kern County. The well is one location north of the pool opener they clicked with last July on the section. Aimed primarily for the Buttonbed sand, the operators probably will take a look at all formation above that zone as a prelude to drilling a shallower try in the neighborhood.

Lanare Adds Redrill Job

The Coast-Gibson-Neaves organization has started work on its redrill of Hahn No. 68-24 well in the Lanare field on Sec. 24-17s-18e. Amerada Petroleum Corporation first drilled and placed the well on production, but due to ensuing casing failure gave it up. Coast holds considerable ground in the area.

Kern River Drilling Due

With the threat of a price rollback in heavy crude oil prices out of the way, Cleveland Oil Company has called for bids to drill 10 wells in the Kern River field. The company's 40-acre David lease is in Sec. 36-28s-27e. Currently there are five wells putting out 100 barrels of 13 gravity oil a day on the property. North of the Kern River field proper, Douglas & Von Breyman is drilling at 1000 ft. with Anderson No. 1, a test well on Sec. 18-28s-28e.

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Indio Try Drills On

C. H. S. Company, Ltd. has passed the 1700-ft. mark and is drilling on down with its Bobbie No. 1 wildcat well on Sec. 11-5s-7e in the Indio area, Riverside County.

Kramer Try Digs

Approximately 20 miles northwest of Barstow, Jack Radovich is prospecting ahead at 2250 ft. with his No. 1 test in the Kramer area, Sec. 3-10n-5w, San Bernardino County. The L. H. Cameron No. M-2 on Sec. 32-2s-8w in Chino Hills is ready to pump test from a plugged depth of 1404 ft. Total bottom is 1756 ft.

Antelope Valley Wildcat Working

Being prepared for deepening from present level of 3015 ft., is Scott No. 1 wildcat on Sec. 10-8n-15w in Antelope Valley. Operations will be under the banner of Staiger & Freeman. Former owner was California Medal Products Company.

Anaheim Well Listed Finder

Yield last reported was comparatively small, but Patrick A. Doheny's well in the Anaheim area now can be chalked up as a definite new discovery in Orange County. The well was pumping 11 gravity crude oil at the rate of 50 barrels daily from a plugged depth of 4550 ft. Further development in the area seems warranted. The project, Holsinger No. 1 on Sec. 22-4s-10w, is about a mile south of Anaheim on a lease embracing between 800 and 900 acres. Derrick is south of Ball street and between Manchester boulevard and old highway 101. Total bottom of the well is 4631 ft. In the East Coyote area, Padre Oil's Tuffree No. 1-19 on Sec. 19-3s-9w is digging at 2150 ft. At Sunset Beach, Seaview Oil Company is making hole at 2640 ft. with Sunset Heights No. 1 test on Sec. 29-5s-11w. Col. D. D. Stewart's Stewart-White No. 1 on Sec. 28-3s-9w in the Richfield area continues to progress with the bit near 3760 ft.

Wheeler Ridge Wildcat Drills

Hancock Oil at last reports was slugging away at 940 ft. with its interesting wildcat well about a mile and one-quarter from production uncorked by Standard Oil at Wheeler Ridge in Kern County. The well is numbered 61-35 and is on lease from the Kern County Land Company on Sec. 35-11n-20w. Five miles west of the South Belridge field and three miles south of Bacon Hills, Independent Exploration is drilling at 1770 ft. with its Hyde USL No. 3 on Sec. 3-29s-20e near Carberos Springs. The company's Means No. 1, a wildcat well on Sec. 34-30s-29e near Mountain View, is digging at 2864 ft. Havenstrite Oil Company's Mountain View test, Tyner No. 1 on Sec. 2-30s-28e, is making hole at 4840 ft.

Los Gatos Test Starts

A second test well is starting in the Los Gatos area of Santa Clara County under the banner of Frank C. Fabry and L. C. Bowles. The venture, Idylwild No. 1-A, is working on Sec. 5-9s-1w. At Santa Rosa in Sonoma County, Santa Rosa Exploration Company's Stephens-Rohnert No. 1 wildcat is drilling at 4160 ft.

Bethlehem Supply Makes Announcement

Bethlehem Steel has announced that on January 5, 1951, Bethlehem Supply Company of California operates as an integral unit of Bethlehem Supply Company whose headquarters are at Tulsa, Oklahoma. This move combines the operations of Bethlehem's oil field supply activities under one management and will result in a more unified effort in supplying the needs of the ever expanding oil industry.

Bethlehem entered the oil field supply business in 1937. Since that time, its supply operations have expanded so that the present organization includes fifty field stores and two manufacturing plants located in Corsicana, Texas and Tulsa, Oklahoma. Its plants produce a complete line of both drilling and production machinery.

Bethlehem Supply Company is represented in the export field by the Bethlehem Steel Export Corp. located in New York.

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Rocky Mountain NEWS

Colorado—Idaho—Montana—New Mexico—Utah—Wyoming—Western Canada

The first pint of oil has been found in North Dakota! While the oil show, first reported in the state, does not bring North Dakota into the column of oil producers, it is the first real sign of encouragement for major operators who have leased millions of acres of state and private lands during the past two years.

Amerada recovered the pint of crude in the bottom of a tester used at the No. 1 Clarence Iverson in the Beaver Lodge area, Williams county. After drilling to 10,803 feet, the operator ran a drillstem test in the Jefferson sand. The well made 824 feet of gas cut mud, with the pint of oil in the bottom. Although the well is not commercial, it is the first report of saturation in the big Williston Basin of the Dakotas, Canada and northeastern Montana. It is bound to stimulate exploration in the year ahead.

Continental's deep test at Table Mesa, New Mexico—first to go below Cretaceous formations in the field—flowed 190 barrels oil daily with some sediment after acidizing the Pennsylvanian at total depth of 7761 ft. The well also tested noninflammable gas at the rate of 1,400,000 cubic feet per day (83 percent nitrogen, 6 percent helium and about 8 percent hydrocarbons). Previous production in the field, discovered 25 years ago, has been from the Dakota sand.

The Rocky mountain region entered the new year with the highest volume of crude oil production in history, with prospects of a record year in exploration and wildcatting ahead.

Contracts have been awarded for building the region's third major pipeline outlet to outside markets. Several contractors will lay the $60,000,000 Platte pipeline from Worland to Casper to Wood River, Ill. Successful bidders were R. H. Fulton of Lubbock, Tex., who will lay the line from Worland to Brule, Nebr. Bishop and Lock of Dallas, Ramsey Bros. of Houston and O. R. Burden of Tulsa will build the remainder of the line, which is scheduled for completion late in 1951. It will have a capacity of 75,000 barrels of crude daily, with two pump stations initially and the pipe 20 inches in diameter. Another pipeline from Drumwright, Okla., to the Chicago area will cross the Platte pipeline, affording connections to Chicago markets for Rocky mountain crude.

Other regional outlets are provided by Service Pipe Line's carrier from Wyoming's Elk Basin field to Kansas City, Mo., and the new products line from Salt Lake City to Spokane, Wash., providing new markets for Rangely, Colo. crude.

The pipeline picture has already stimulated development and wildcat drilling in Wyoming fields. Ohio Oil Co. has embarked on a program of drilling 50 pool wells and extensions in Big Horn Basin black oil fields. Continental is keeping 12 rigs busy in the fast growing Sussex-Meadow Creek area of southern Johnson county, north of Salt Creek field. Many small lease brokers rushed to file applications at the federal land offices before the new oil and gas application and lease forms took effect Jan. 28, requiring down payments at time of filing.

Wyoming oil production maintained its new record level of 180,000 barrels per day, which put the state in sixth place ahead of Illinois among oil producing states. At this rate, production is headed toward a new all-time record of 65 million barrels in 1951, and further increases are anticipated with completion of the new Platte pipeline.

The Wyoming legislature, meeting in Cheyenne, is expected to debate the hotly-contested issue of a severance tax on oil, gas and other natural resources. Such a tax would be in addition to the present production tax, which averages about 10 cents per barrel of crude. Indications are that the house of representatives will pass such a measure, but that the contest will be close in the state senate. The new governor, Frank A. Barrett, opposed the severance tax in the pre-election campaign last fall, but went on record favoring a new conservation law.

As drilling continued almost unabated in exceptionally mild winter weather ushering in the new year, these were the principal developments in Rocky Mountain states:

WYOMING

J. G. Dyer of Denver and Southern Production Co. of Shreveport, chalked up a new pay discovery in the Muddy sand at the Big Muddy field in central Wyoming, one mile east of production. Despite its name, Big Muddy has no previous Muddy sand production. It got its name from plain old Wyoming gumbo which impeded drilling operations in the early days.

Robert F. Six, Denver, head of Continental Air Lines, has turned to wildcatting successfully. His stepout in the South Little Buck Creek field, Niobrara county, flowed 525 bbls. oil in 20 hours in a recent test, from the Dakota sand. Continental Oil Co. has the bulk of production in the field proper.

Trigood Oil Co. of Casper has a small producer in the East Teapot area north of Sage Spring Creek. The well, two miles northeast of Dakota sand producers in Amerada's North Sage Spring Creek field, swabbed 60 to 70 barrels oil daily from a thin section of sand. Trigood is drilling another well in the area.

Brinkerhoff Drilling Co. of Casper completed its No. 1 Walkinshaw in the interesting South Glenrock area, Converse County, for a gauge of 450 bbls. oil daily thru choke from the Dakota sand. Ralph Lowe completed his third well on a 90-acre lease in the middle of the Far West, Hancock and Continental block, and started the fourth and last well on the lease. Considerable production is developing in this new area, which has two producing levels: Muddy and Dakota. Some of the new production is shut in pending completion of the Platte pipeline.

Phillips Petroleum is drilling its deep Careyhurst wildcat in Converse county, which is scheduled to test the Dakota around 10,000 feet. A. B. Cobb and Superior plugged their deep Dakota test at Dull Center in northeastern Converse County, and this failure chilled leasing and exploration in the deeper portions of the Powder River Basin.

Ryan Oil Co. has found little encouragement in his deep Julesburg Basin test east of Cheyenne, near the Wyoming-Nebraska line (Lindberg area). The well went to 8325 ft. to find the Dakota and Sundance barren, then plugged back up the hole to test slight shows in the Muddy sand.

Bonanza Oil Co., promoted by Dr. Victor Ziegler, cmpleted its Tensleep discovery on the Bonanza anticline in Big Horn county for 250 bbls. per day flowing thru 8/64 inch choke. Oddly enough one of the earliest oil discoveries in the Big Horn Basin was made on this anticline. It came from an oil seep, and was used by the early settlers for lighting and lubrication. Later some production was found in the Frontier sand, but it was not until 66 years later that Tensleep production was found. This experience is typical of the Big Horn Basin, where deeper drilling in fields like Elk Basin, Garland, Hamilton Dome and others has turned up pay in the Tensleep, Embar (Permian) and Madison.

Several wells are going down in the Bonanza sector, and considerable drilling is in store for other known structures in the Big Horn Basin in 1951.

COLORADO

Colorado's production is running better than 75,000 bbls. daily, with most of the increase coming from the big Rangely field. Drilling emphasis is placed on the northeastern corner of the state, where the Julesburg Basin laps over from southwestern Nebraska.

Early in January, G. S. Atchison plugged his Cottonwood venture, No. 1 Reagan, in Weld County, at 6225 ft. Water was recovered on tests of the Dakota sand. Ryan also had a disappointment at the No. 1 Means in the Holyoke area, Phillips county, which was abandoned. Ohio Oil was below 6100 ft. at the interesting Eckley area wildcat in Yuma county.

In Montezuma County, the Woody Hawkins wildcat six miles northwest of Dove Creek production, recovered oil and gas cut mud and salt water in a test of the Paradox below 6035 ft. Earlier Byrd-Frost, Inc., recovered gas at the No. 1 Sitton northwest of Dove Creek, and ran casing for tests. This well gauged nearly a million cubic feet gas daily, and will be acidized to increase production.

Colorado's deepest well, the Mountain Fuel Supply Co. wildcat at Hiawatha in Moffat county, was coring below 14,330 ft., with still no Dakota sand top reported. Dakota sand, big gas producer at the Church Buttes field north of the line in Wyoming, is the goal of the venture.

General Petroleum neared 10,000 ft. at the Craig Dome venture after topping Tensleep (Weber) sand at 9729. No shows of oil or gas were reported.

Continental has a new pay in the Weber sand at the Thornburg wildcat in Moffat County. Tests showed natural gas in commercial volumes, and the operator is now drilling below 4,900 on the way to the Madison lime.

MONTANA

Cities Service has commenced drilling a 10,000 ft. test in the Widdecomb area of Wheatland county (sec. 30-6n-16e). It will seek the Charles formation.

Carter Oil Co. found the Madison lime at 3572 ft. at the Coyote Springs wildcat in Glacier County, but a drill stem test turned up only a faint show of oil and no gas or water. The outcome is not too promising.

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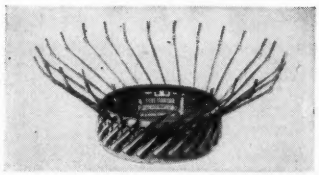

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UTAH

Another deep Utah wildcat is nearing a decision in the big Uintah Basin. Carted and Stanolind's Blue Bell venture in Duchesne County made only a small amount of drilling fluid in a drillstem test between 11,230-11,348. Slight shows were found earlier in the basal Green River section higher in the hole.

General Petroleum has reached 4900 ft. at the San Rafael venture in Emery County after logging gas cut mud and water on tests.

The California Co. was stalled by a fishing job at the Red Wash venture in Uintah County, which earlier had gauged as much as eight million cubic feet of gas daily on tests of the Upper Green River formation.

Carter started its fifth wildcat in the Vernal area, and The California Co. set surface on its Gusher Unit wildcat, located northwest of the firm's discovery in the Green River formation.

NEVADA

Nevada's hopes of becoming an oil state are centered on Standard of California's venture in the Hayden Creek area, White Pine County. The well set surface casing and is drilling ahead.

Continental and Standard of California plugged their joint undertaking at the Meridian Unit, White Pine County, but probably gained valuable geological information. It drilled to 10,311 ft.

McCarthy Gas & Oil Co. has a venture last reported drilling below 4500 ft. in the Elko area, Elko County.

NEBRASKA

Natural gas production in western Nebraska may become more important than crude oil when the drilling story is told for 1951. C. B. Edmondon and Ideal Drilling Co. are completing a third gasser in the Big Springs field, Deuel County. A previous completion gauged 2¼ million cubic feet of gas daily from the "D" sand, Dakota series.

In the Dalton area of Cheyenne County. C. E. Stout and Recco Oil Co. are testing their wildcat on pump, after swabbing six to seven bbls. oil per hour from the "D" sand. Total depth is 5022 ft.

Ohio is continuing an active development program in the Huntsman field. The firm's No. 1 Rippe recently was completed for a gauge of 10 million cubic feet gas daily. The No. 2 Pahl made a small oil pumper. The No. 3 Benson made 15 bbls. oil and 135 bbls. water per day.

Oil production from western Nebraska is approaching 10,000 bbls. daily, producing firms report, and this compares to only 1,500 bbls. daily a year ago.

PERSONAL MENTION

Walter Wittlinger of Cities Service Oil Co., Casper, is the new president of the Wyoming Land Men's association. Other officers are Ray Nemeck, Phillips, first vice president; Carrol Hocker, Seaboard, second vice president; Dean Shackleford, Pure Oil, secretary; Stewart Gildersleeve, Atlantic, assistant secretary; and Robert D. St. John, Stanolind, treasurer. The association takes an active part in discussion of problems relating to land activities in the region.

Office Changes: British-American has created a Rocky mountain division office at Denver, with C. D. Miller, executive vice president at Tulsa, announcing the appointment of A. W. Cullen as exploration manager. District offices are maintained at Casper and Sidney. Argo Oil Co. has moved its offices from Casper to Denver. Phillips is expanding its district office at Casper, taking out a three year lease on a new building addition. Deep Rock Oil has announced setting up of exploratory offices at Denver and Sterling.

Oil Fraternity: C. W. McAlpin has opened an office in Casper as an independent lease broker. Ted Maxwell, formerly scout for Sunoco at Casper, has been transferred to the land department of the company at Denver. Dick Leuenberger is the new Rocky mountain scout for Sun at Casper. V. A. Peterson, formerly chief geophysicist for Sinclair's Rocky mountain division, was promoted to supervisor of geophysical operations at Tulsa. Robert L. Schmidt took his place in Denver.

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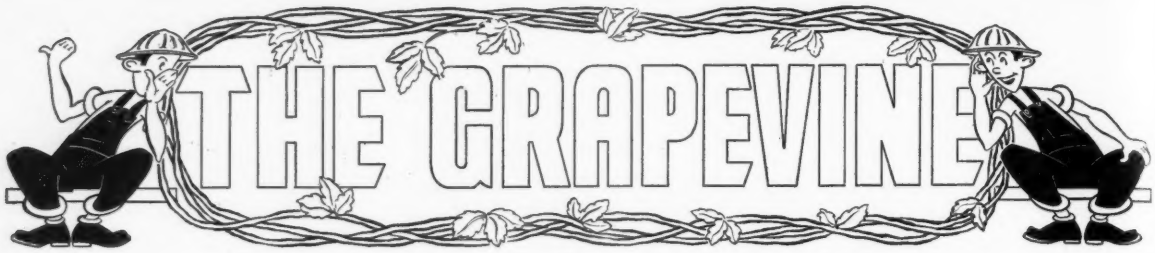

As the result of an agreement under which Bethlehem Supply Company of California became distributor for Tube Turns, Inc., on the west coast, effective December 1, 1950, there have recently taken place here in Los Angeles a series of executive conferences, employee get-togethers, powwows, and educational sessions that wound up on Saturday evening, January 13, in a grand whingding at that noted Hollywood hostelry, the House of Murphy. Of this latter, more anon, but meantime be it known that from the Louisville, Kentucky, headquarters of the famous Tube Turns institution there swarmed into Los Angeles for these convocations a rare representation of top echelon brass and its accompanying aides.

Leading the delegation was that thoroughly personable being, John G. Seiler, executive vice president, whom we had the pleasure of meeting some time ago at a famous Nineteener gathering at the Annandale Country Club; John B. Henby, vice president, another much esteemed citizen of the deep south; John E. Chumbley, capable sales manager of the forging division; T. H. Pike, assistant sales manager of the fittings division who also attended the aforesaid Annandale party and gave an excellent account of himself; Carl B. McLaughlin, manager of the engineering service division, and proprietor of one of the best **basso profundos** since the passing of Chaliapin; Gene Wedereit, director of advertising, who did a grand job of arranging and making everybody feel comfortably at home. Then there was the Pacific Coast Tube Turns delegation, including such luminaries as Lewis M. Bound, Jr., west coast district manager; Earl P. Muir, San Francisco representative; and Norton P. Bosemer, manager of the Los Angeles office.

In addition to its entire supervisory staff, Bethlehem Supply Company was represented by that nationally known chanticleer, C. R. "Red" Zimmerman, executive vice president of Bethlehem Supply Tulsa, with whom we have warbled many an engaging roundelay; Wendell M. Jones, vice president and general manager of the California organization, and one of the best known and thoroughly liked equipment executives on the Pacific Coast; Jack Hollingsworth, general sales manager, a big, hearty, substantial chap who also has a raft of friends in the California oil fields; and last but by no means least, Fritz Stiefler, the flying public relations manager who seems to have been born with a camera attached to his chest.

The main function of the gatherings was to get the key personnel of the two organizations well acquainted; to familiarize all concerned with the equipment involved and the combined available service facilities; and to develop and implement an effective cooperative sales program. This was contrived in a succession of intensive discussions and demonstrations that kept the entire assembly on its toes for the duration, and if one is to judge by the obvious enthusiasm of the participants the sessions were eminently successful.

After it was all over, by way of relaxation came the House of Murphy soiree on which we are in a position to dilate first hand, having had the good fortune to be there. It opened with the serving of various species of titivating **equa** to which the guests applied themselves with becoming decorum. Meantime, we in our usual inane manner thrashed around among the people searching eagerly for bits of scandal and stuff for our panting public; throwing incipient quartets violently offkey; and receiving at regular intervals from Ralph Clemons that scornful sideglance — Ralph demands harmonic perfection even in an impromptu quartet, and frankly we just don't have it.

We spotted quite a few old Bethlehem friends in the congregation, for example, Roger Brown, the San Joaquin Valley division manager, a considerable pumpkins at the Stockdale Country Club and a pretty sharp cookie with a niblick; Jack Graves the collegiate looking manager of machinery sales; Jack McBride, district purchasing agent and well known man about town; Jack Freeman, manager of stores and a hot-shot proponent of gin rummy; Jack Branyon, Bakersfield sales rep and son of our good friend, Ollie; Dan Schweinhard, nephew of the late George Schweinhard, Petroleum Equipment executive; Jack Houlihan, the merchandizer, whose good lady, Stella, we remember since she was a perennial Union Oil Company tennis champ.

In addition there were such notables as little Jim Bogle, ex-officio mayor of Taft, who claims to be 5 feet 18 inches tall, and probably is; Gene Correll, a sweet warbler if we ever heard one; Paul Rohde from Bakersfield, and his buddy, Dick Rickon, with whom we discussed world affairs; Carl Hitchcock, organizer and moderator of sporadic quartets; Bill Briscoe, manager of publications who knows all, sees all, and prints it; Dick Kilpatrick and Don Westfall, a pair of machinery experts of high repute in the west; Pappy Reid, district manager at Castaic and said to be without peer when it comes to administering down-to-earth field service; Dick Murphy, a titian haired purchasing chap, who finds his fun finding his ball on the local links; and Jim Cline, handsome young buyer who hasn't yet become accustomed to the big city and sighs audibly for his former haunts up in the Valley.

Others who threw themselves into the festivities with a commend-

able lack of restraint were Max Klepfer, the famous Waltonian; Harry Robinson, one of Whittier's favorite sons; Chuck Briley, the engineering genius; Glen Guidinger, Bob Roeder, G. B. McNamara, and Fred Kresser all of whom live so secretly we didn't find out a thing about them; Ike Warrington, the eminent authority on television; Phil Hill, who spends his weekends thrashing the sward with an 8-iron; Virg Stahl, Bill Pickering, and Bill Meub, all expert in the art of juggling figures; Bob Arthur, Walt Bergman and Mike Barrett from stock control. Walt keeps the boys informed on Santa Anita doings and Mike knows the football hop; Johnny Dagg and Bill Loosemore, a pair of highly eligible bachelors.

And there was Ernie Embury, Carl McBride and Bill Roy. Carl steps a neat allemand left in the old hayloft we hear; Si Barnes, Joe Lindley, the Bakersfield Babe Ruth, Bob Harrod and Red Cadwallader, also from Bakerstown; Paul Dooley from the little town that gave one of our presidents his last name—Taft; Will Movsky and Buck Knapp from Kettleman town, Avenal; Lin Guttery from Ventura, much feared exponent of gin rummy; Walter Kropf and Frank Johnston from Santa Maria the village that made petroleum history; Jack Moore from Castaic—he may be a Cuyama baron one of these fine days; Dave Hardie from Long Beach, the capital of Iowa; Buck Avery and Orville Bachman from Wilmington, the pioneer town that sent missionaries to Los Angeles; Glader Jahr, E. O. Kolb, Bob Anderson and Bill Weitzel from San Francisco, Bagdad by the Bay; and finally, that inveterate traveller, Harold Lyons, the Gulliver of the equipment business.

It was certainly a great affair for which we can vouch with genuine fervor. Led by Wendell Jones and Red Zimmerman, an improvised glee club sang a touching tribute to the Louisville delegation. In this a certain lady was exhorted quaveringly "to weep no more for her old Kentucky home" and we earnestly hope the certain lady didn't hear the plea. Other classic numbers were rendered, and we use the word "rendered" advisedly, while the ubiquitous Fritz Stiefler and Gene Wedereit skipped hither and yon with their cameras firing off blinding flash bulbs and investing the night with appropriate Hollywood atmosphere. Everybody had a grand time and just to make the memory of the admirable event more lasting, each guest was presented during the evening with a neatly monogrammed cigarette lighter. Personally, we favor one of these parties every week. And if in this recital we have missed any of the guests we offer profound apologies.

DEVELOPER OF TOMORROW'S DAVIS CUPPERS

HERSCHEL Y. HYDE, vice president of Tide Water Associated Oil Company, and pretty high caliber people by any species of measurement, was born in Stockton, California, and spent most of his early life on a Spanish grant in Sonoma Valley. He graduated from high school there and then went on to the University of California, whence he emerged in 1926 with a B.S. Degree in chemistry. Later he topped off his education with an M.S. degree in chemical engineering at M.I.T., and in the same year accepted a post with Tide Water Associated Oil Company as a chemical engineer. One year after that he was appointed general supervisor of research and development for the company's western division, and in 1946 he became vice president in charge of manufacturing, research and development, which highly responsible position he still holds.

"Hersch," as he is known to his closer friends, is an ardent football, basketball, and baseball fan. He is also an expert at bridge and other similar mental exercises, but his real love sportswise is tennis which he has played ever since he built a court on his parents' ranch at Sonoma in 1917. He was on the varsity team for California University, and coached the M.I.T. squad until he had completed his post graduate course. Meantime, he has held the California junior veterans championship for two years and currently is naitonal hard court doubles and California doubles champ in the veterans class. He spends much of his spare time preparing young Davis cuppers for the rigors of open competition, and has a son, Herschel, Jr., who is shaping up like another Bill Johnston. In fact, it seems to be just a question of time until dad is deposed as the Kramer of the Hyde household. That, however, is one important match he will probably enjoy losing.

The annual meeting of the Petroleum Club of Los Angeles, held on Wednesday evening, January 10, was responsible for bringing together in congenial consort a pretty substantial group of petrolic people. Directing the proceedings was Henry Salvatori, the Western Geophysical president, who has been one of the real sparkplugs of the "petroleum club" idea from its inception, and whose regime as president of the Club in 1950 helped greatly in the development of the idea into a solid, stable entity. The meeting proper was preceded by a cocktail hour during which dominoes attracted major attention while an accordionist stimulated the barber shoppers to sporadic offerings of somewhat doubtful harmony.

Henry Salvatori must have started the meeting in good time for the alarm on his wristwatch didn't go off until things were well under way. Anyway, in turn the members heard encouraging reports from Jim Leovy, secretary; Howard Pyle, treasurer; Cy Hopkinson, auditor; and Phil Magruder, finance chairman. Altogether, there seems little doubt that from the beginning the Club has been in capable hands. The chairman was warm in his expression of thanks to his supporting officers and to the members generally for their cooperation. Later, Paul Huggins, past president, presented Henry Salvatori with an engraved gavel and complimented him highly on the manner in which he and his administration had conducted Club affairs in 1950.

Paul and Phil Magruder both reported on the much discussed prospect of enlarging the club quarters and increasing the membership roster. Several proposals are apparently under consideration and there is

Mr. Superintendent!

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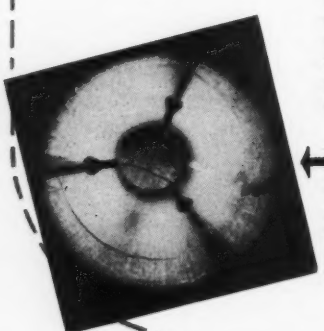
Western's finished report not only includes an extensive description of the condition of each article inspected, but provides actual photographs of defects showing appearance and extent of the flaws. You see trouble points in the making.



Optiscope 360° internal view of fatigue crack in used drill pipe with the magnetic flux powder buildup on it, noted during full length internal electro-magnetic inspection.

In drill pipe, casing, tubing, subs, drill collars, kelleys, links, etc.

Wilson Oil Tool Corp., Ltd., announces the purchase of Western Inspection Company of California and now offers its complete inspection service 24 hours a day 7 days a week anywhere in California.

This division of Wilson Oil Tool Corp., Ltd., will continue to be operated under the name of Western Inspection Company of California with the same operating personnel, but service will originate from the Wilson Plant, Ventura, Cal.

Protect your well—prolong service life of costly equipment—avoid costly downtime by locating possible points of drill stem or casing string failures before failures or troubles occur.

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distinct possibility that definite plans will be formulated and approved before too long. Meantime, the members were given to understand that the petroleum industry had expressed itself very favorably with respect to the proposed enlargement and was disposed to offer tangible support in token of its sympathy with the entire Club project. It certainly fills an industry need as is indicated by the type and size of membership and the degre of patronization.

Chairman of election judges, Sam Grinsfelder, announced during the evening that Bill Geis, Stan Natcher, and Roy Barnes had been elected to replace retiring directors, Frank Morgan, Howard Pyle, and Mort Kline. Immediately thereafter, a board meeting was held and the following officers were named for 1951: Rollin Eckis, Richfield Oil Corporation chief geologist, president; W. H. Geis, consultant and oil operator, vice president; James G. Leovy, Western Gulf Oil Company chief counsel, secretary; and Fero Williams, assistant secretary and assistant treasurer of Pacific Western Oil Corporation, treasurer. Fero was absent in the east during the meeting so was not in attendance.

At the conclusion of the business meeting the affair was turned into a most enjoyable social evening, beginning with a buffet dinner, and subsequently being devoted to rousing jousts of dominoes and other obscure pastimes that kept everybody in high good humor. One or two of the more serious minded discused late developments in international intrigue and cited strange occurrences in foreign lands. We noted Bob Sumpf sitting crosslegged on a stool while he expatiated in Japanese dialect on the advisability of building a bridge across the Honshu River — this for the benefit of his fellow bridge engineers, Jim Kelley, Bob Smith, and Cy Hopkinson. Bill Pemberton and Harvey Lee found it difficult to concentrate on their domino match because of the sizable rosette that adorned the port side of the accordionist's after-deck.

Boez Boezinger was noted throwing his baritone into the odd quartet, and Louie Waterfall, the consultant, had to consult with Howard Pyle about a couple of plays. Howard, after a strenuous year as treasurer for the Club along with sundry other chores, seemed to be unworried and relaxed and enjoying himself no end. Last year's m.c., Ted Evans and Dave Staples were greeted as new arrivals every time they met Elmer Wycoff which was quite often. Harry Long, the Fresno flyer, and Doug Graham, the driller, engaged in a friendly bout of gin rummy and conversation.

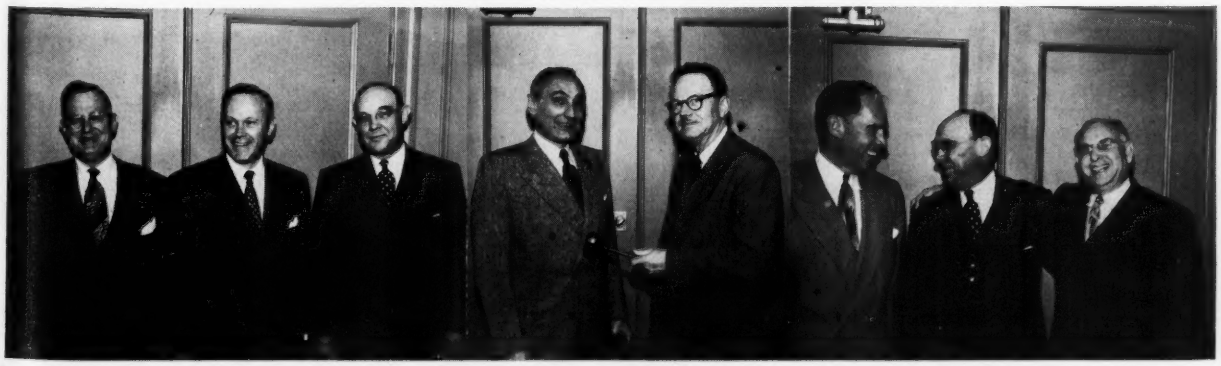
Incidentally, we unwittingly insulted cousin Pic McIver, the Shell ambassador of good will by confusing one of his company's executives with an executive from a rival concern, a heinous offence. Pic is a well traveled chap who has flown so much in the last ten years he is known to every airlines pilot in the country and has had more citations than a Haitian general. When we first arrived we had a pleasant interview with Ches Braly whose last name is pronounced "Brawley" and whose ancestry is as Gaelic as the thistle. Before we were properly organized along came Bill Murphy, the Hibernian oil scout, scattering largesse with a lavish hand.

There were, indeed, just scads of interesting people at the meeting, but space and time are limited and we shall merely close by again remarking that the Petroleum Club of Los Angeles is a distinctive and distinguished institution. It obviously fulfills an essential industry function and does it well. Its continued growth is about as certain as anything can be in these uncertain times.

John F. Gardner, manager of industrial and public relations for The Fluor Corporation, Ltd., Los Angeles, was elected to the board of directors at the annual stockholders meeting. Other members of the board were reelected, including D. W. Darnell, Shirley E. Meserve, J. S. Fluor, W. Earl Dunn, F. M. Stephens, J. Robert Fluor, Francis E. Fischer and J. P. Wiseman.

William A. Bennier has returned to the Southern California Gas Company at Los Angeles with vivid memories of an exciting tour of Asiatic duty with the Marines as a corporal. Bennier left Camp Pendleton with Headquarters Unit, 2nd Battalion, 11th Marine Regiment, attached to the 1st Marine Division, last August. He debarked at Kobe, Japan, September 1, and landed on the United Nations Beachhead at Inchon shortly before the invasion.

The incoming and outgoing officers of the Petroleum Club.



James G. Leovy, Secretary; Rollin Eckis, President; W. H. Geis, Vice President; Fero Williams, Treasurer, not shown in picture.

Henry Salvatori, Retiring President. Paul Huggins, Past President.

S. Z. Natcher, W. H. Geis, R. M. Barnes, Directors.

Personalities IN THE NEWS

Hugoton Company Purchases Mid-Continent Gas Reserves For $36,000,000

In what is believed to be one of the largest purchases of privately owned natural gas reserves, a group of western industrial and investment men has been formed by William R. Staats Co. of Los Angeles to organize a new corporation for the production and development of gas properties in the Mid-Continent. Total consideration is approximately $36,000,000. The new organization, to be known as the Hugoton Plains Gas and Oil Company, is comprised of three principal stockholders—J. Simon Fluor, William R. Staats Co., and Fred R. Tuerk.

After two years of negotiations, the properties were purchased by the new Hugoton Plains Gas and Oil Company, which placed $20,000,000, 15-year four per cent first mortgage notes with the Mutual Life Insurance Company of New York and another leading insurance institution.

All gas production is being sold to the Northern Natural Gas Company of Omaha, Neb., and present deliveries are at the rate of approximately 90 million cubic feet a day.

The new company has leases in proven gas fields totaling approximately 95,000 acres in the Oklahoma Panhandle and 20,000 adjoining acres in Kansas, and gas reserves are estimated in excess of 800 billion cubic feet.

At present there are 154 producing gas wells on the properties, which have an allowable production of 90 million cubic feet of gas a day. To complete the development of the properties, an additional 30-40 wells will be drilled within the next six months, which should increase the production capacity to about 120 million cubic feet a day.

A natural gasoline stripping plant is now under construction near Hooker, Okla., and will be completed about March 1. This plant will have the capacity to produce 100,000 gallons a day of butane, propane, and natural gasoline. The gasoline plant, gas wells and other production facilities represent an investment of $10,000,000.

Officers of the new Hugoton firm are J. Simon Fluor, president; Fred R. Tuerk, chairman of the board; Donald Royce, vice-president; G. Hamilton Beasley, treasurer; and Dewey F. Gruenhagen, secretary.

Mr. Fluor is executive vice-president of The Fluor Corporation, Ltd., Los Angeles, designers and constructors of plants for the oil, gas-gasoline, chemical and power industries. His valuable experience gained by 30 years in the gas and petroleum industries made him the logical choice to head the new syndicate. He will, however, continue to serve in his executive capacity with The Fluor Corporation while assisting the Hugoton organization with his knowledge and experience in gas operations.

Mr. Tuerk, a midwest industrialist, has long been active in industrial banking, and at present makes his home in Florida.

Mr. Royce is president of William R. Staats Co., and it was largely through his efforts that the new syndicate was formed. The Staats Company was organized in 1887 in Los Angeles, and is the oldest investment company in Southern California.

Mr. Beasley and Mr. Gruenhagen are executives of Staats. All officers of the Hugoton Company will retain their present posts in their respective companies while accepting the additional responsibilitiy of directing the operation of the Hugoton Plains Gas and Oil Company.

J. S. Fluor

Fred R. Tuerk

Donald Royce

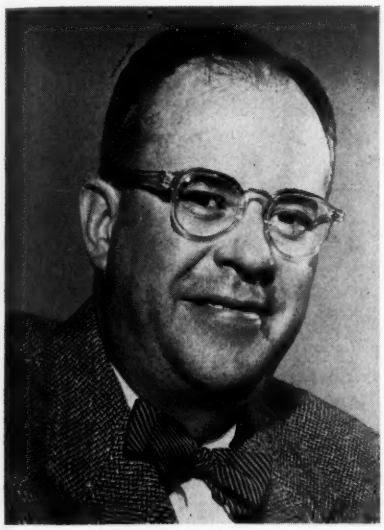
Fritz Huntsinger, Ventura Tool Company, spoke on "The Heavy Industry and Oil Fields of Europe" at a dinner meeting of the junior group, Pacific petroleum chapter, American Institute of Mining Engineers, at the Rio Hondo Golf Club, Downey.

Charles O. Premo, secretary of the San Joaquin Valley Oil Producers Association, has announced that the organization's annual dinner meeting will be held February 28 at the Bakersfield Inn, Bakersfield. Guest speaker will be Bruce K. Brown, Deputy Petroleum Administrator for Defense.

Standard Oil of California has made known the transfer of N. H. Wallace from the head office in San Francisco to Calgary, Canada, as assistant treasurer.

Art Moore and Ralph Ruse Form Diamond Drilling Co.

With offices in Long Beach, California, J. Arthur Moore has joined Ralph Ruse as a partner in the Diamond Drilling Company. For the past year and a half, Ruse has represented Drilling and Service Company of Dallas, Texas, on the West Coast, handling Truco diamond bits and D & S core barrels. This service company sells and rents equipment or contracts for diamond coring on a footage basis. It is also the world sales representative for the famous Soll Telescoping core barrel.



J. Arthur Moore

Art Moore was one of the founders of Oil Base, Inc., Compton, and served as Vice-President in charge of Sales for that company for five years. He was with Baroid, prior to the formation of Oil Base, Inc.

Ralph Ruse represented Oil Base, Inc., in California, the Rocky Mountains, and the mid-continent. For the past year and a half he has represented Drilling and Service Company under the name of Diamond Drilling Company. Prior to these connections, he was a Mud Engineer with Baroid.

Also associated with the newly-formed Diamond Drilling Company in a sales and service capacity are Don Leidecker, Jack Flanakin, Bill Evdokimoff, Whitey Fuller and Van Keenan.

Those wishing to contact the new firm can reach them at 2759 E. Willow, Long Beach. Phone Long Beach 407940. Offices have also been established in Bakersfield and Ventura, California.

Milt Lansing Rejoins Power Rig

Milt Lansing is back with Power Rig and Equipment Company. He couldn't get the oil blood out of his veins.

After leaving P. R. E. in April of last year, he busied himself making some improvements on his property at Yorba Linda, built a new home and then with things caught up put his hand to selling real estate. That worked fine until the Korean situation caused our government to change credit arrangements on buying and this resulted, in his locality, in curtailed real estate purchases. Milt then decided that with these conditions prevailing again that he had better get busy and do something to assist with the war effort. The net result is that he is back at the old stand. Milt will handle purchases and credits for P. R. E. and will again renew the association with friends made over the many years he has spent in the oil business.

H. Brewster Jennings, president of Socony-Vacuum, parent company of General Petroleum Corporation, was a featured speaker at the celebrations at Beaumont, Tex., marking the 50th anniversary of the Spindletop oil field. Jennings said that if total war with the Communist nations should come the free nations will have about 90 per cent of the world's oil resources. "Of all the available sources of energy," he added, "by far the best for war is oil. In fact, oil is the only fuel which modern armies, navies and air forces can use. Oil gives our forces virtually unlimited mobility, which may prove a determining advantage."

The Los Angeles Philharmonic Orchestra will present the Mahler Resurrection Symphony in Pasadena during next Easter week through cooperation of the Union Oil Company. Costs associated with rendition of the symphony were covered in a check handed by President Reese H. Taylor of Union Oil to Mrs. Arch B. Tuthill. Mrs. Tuthill is president of the Pasadena Philharmonic Committee.

W. G. Andrews Appointed Executive Vice-President and General Manager of Electrofilm Corp.

W. G. Andrews, well known in business circles, has been appointed Executive Vice-President and General Manager of Electrofilm Corp., it was announced recently by E. R. Hall, President of the corporation.

Andrews, who for over 18 years was associated with the Bastian-Blessing Company as District Manager, attended Lincoln University in San Francisco. Prior to his association with Bastian - Blessing, Andrews was California Manager of the Brunswig Drug Company.

W. G. Andrews

As Executive Vice-President and General Manager, Andrews will head all phases of the Electrofilm Corporation. Electrofilm is the manufacturer, applicator and licensor of two processes: the Electrofilm S. F. L. Process and the Electrofilm Heating Process. The Electrofilm Solid Film Lubricant process is a method of applying a stable (dry) lubricative film to practically any surface. The process is currently being used by the major aircraft industries, the armed services, railroads, refineries and several hundred other concerns in the industrial field. The Electrofilm Heating Element process is a method of applying an electrically resistant film to various surfaces. This process has proved invaluable in de-icing problems encountered in the aircraft industry.

With Drilling Contractors

The AAODC met jointly with the Independent Petroleum Association of America and the Mid-Continent Oil and Gas Association at Dallas on January 18 to discuss the advisability of continuing provisions for allowing the writing off of intangible drilling costs. An association bulletin pointed out that this matter comes up each two years, but it is generally considered that the drilling industry must have the option to write off intangible drilling expenditures under the present development program.

Contract drillers were encouraged by the recent announcement of Deputy Petroleum Administrator for Defense Bruce K. Brown that makers of tubular goods will be assured of enough steel to turn out about 1,890,000 tons of their products in 1951. He disclosed that his department had reached an understanding to this effect with the National Production Authority. Such an amount of steel will permit oil companies to drill some 44,000 wells during the ensuing year. Brown said this was substantially more than they drilled last year, when about 1,700,000 tons of oil field pipe was fabricated. In a speech before the San Joaquin Valley chapter of the API at Bakersfield, Roy W. Johnson, vice president and general sales manager, Republic Supply Company, discussed supplies for full scale field operations. He outlined the program of the Petroleum Equipment Suppliers Association under which it already has representatives conferring with the Federal Government to avert any curtailment of operations and employment as in the past during similar emergency conditions. Johnson in part said: "since it is up to the supplier to gear his stock to the need of the industry, we continually make surveys which guide the manufacturer in producing needed equipment. In turn, we keep oil operators constantly advised as to the latest equipment for producing at low cost. For those reasons, our firm is wholeheartedly contributing to efforts to prevent any slowing down of activity in the petroleum industry which might affect the economy of those communities dependent upon this industry for employment."

Get JENSEN for Rough Going

When the chips are down and the going is rough don't send a boy where it takes a man to pump your wells. Jensen units have been field tested for 30 years all over the world. This experience—plus rugged design—enables a Jensen to overcome—profitably—the most adverse production problems.

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Brown Drilling Company of Long Beach completed 74 contract wells in California during 1950. The company reported that total hole drilled successfully was 326,618 ft. and that operations were free from appreciable lost time accidents or mechanical difficulties. In Brown's 14 years of operations in California, 650 wells have been completed for a total of 2,428,652 feet. The company and its associates have also clicked with their 28th producing well in Texas since their initial discovery well was drilled and completed in May, 1949. They are also moving ahead with contract drilling operations at Bahrein Island and Kuwaite in the Persian Gulf. Brown contract rigs are familiar in all California oil areas. One of Brown's toolpushers was recently promoted to assistant drilling superintendent in the Rio Vista area. He is Walter Musolf, who has been with the company for 10 years. Musolf works under Don Green, drilling superintendent at Bakersfield and in charge of all Brown operations.

Fred Bayless, Big Chief Drilling Company, Odessa, Tex., is the new chairman of the Permian Basin chapter of the American Association of Oilwell Drilling Contractors. He succeeds H. W. Davidson, Davidson Drilling Company, Odessa, who was elected vice president of the AAODC for West Texas and New Mexico at the 10th annual meeting in Tulsa. Other chapter officers elected for the ensuing year included Robert C. Schmidt, Loffland Brothers, Inc., Midland, vice chairman; and Fred J. Agee, J. F. Postelle, Odessa, secretary.

Gas Injection Project

(Continued from page 11)

back to January 1, 1942 were revised on this basis to provide the most representative average reservoir pressures, both during and immediately prior to the large scale injection of gas into the Temblor. Key wells have been established in which representative upper and/or lower zone pressures may be obtained. Injection wells are not used as key wells, nor are wells that have been invaded by high-head edgewater.

Pressures in the key wells are extrapolated to the 7,000 ft. ss. datum on an oil and/or gas gradient, depending on the relationship of the mid-point of the perforations and the datum plane to the gas-oil interfaces as established for the zones.

The trend of pressures obtained has been checked by annual material balance calculations, and it was found that the pressures as calculated followed closely the trend of the observed pressures. In this regard, the trend of reservoir pressure is more significant in reservoir calculations than is the exact value of pressure at any one time.

Benefits of Injection

The results of injection have been reflected most clearly in the north end where it has been responsible for arresting the previous rate of very rapid production decline. The effect of this upon total pool production since injection began in 1942 can be seen quite clearly by referring to Figure 5. Even though development has continued since the starting of injection and while this has had a sustaining effect upon the rate of oil production, it is to be noted that development was active also during the period immediately prior to the start of injection when the rate of oil production nevertheless was declining rapidly. This would indicate that the major cause of the sustained production rate since injection is due to the sustaining effect of injection upon north end pressures which has maintained the ability of that area to produce. Another measure of the benefits of injection is to be found in Figure 7 which shows the variation of reservoir pressure with cumulative recovery. This figure indicates that a new trend has been established and that continued injection should increase the ultimate oil recovery over that obtainable by depletion methods at the same abandonment pressure.

It should be noted that not all areas of the Temblor Zone are receiving benefits from the injection program. In some parts of Zone V in the north end, certain wells have demonstrated a gas-oil ratio trend which is indicative of depletion type mechanism sand instead of the more rapidly increasing gas-oil ratio trend. characteristic of the reservoir in which gas is being injected. This may be due to the extreme width of the oil band in this zone in the north end which will require a longer period of time for injection gas to reach the structurally lower wells. With the large number of zones and sub-zones open to production and the inherent overall inefficiency due to sand non-uniformity, it is not reasonable to expect in a project of this size, that the benefits of injection can be balanced among all zones at any one time. However, continued review of the project, indicating necessary changes in the injection pattern, will give the best assurance that all zones may be swept with some degree of uniformity during the life of the project.

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Abstracted from a paper delivered at a recent meeting of the Division of Production, American Petroleum Institute.

Shrimpton Moves Into Larger Quarters

Dudley J. Shrimpton announces the move of his organization, The Shrimpton Manufacturing and Supply Company, to their new home at 5400 Jillson Street, Los Angeles.

The Shrimpton Manufacturing and Supply Company are the oil field distributors of Minneapolis Moline engines. Situated two blocks east of Atlantic and one block north of Washington Boulevard, the new shop and warehouse facilities will enable them to better serve their many customers.

New Bulletin by National

IDEAL DUPLEX POWER SLUSH PUMP. The new Ideal Type C-150-B Duplex Power Slush Pump, with 7¼ in. maximum fluid cylinder liner bore, 12 in. stroke, and rated output of 160 hydraulic HP at 70 SPM, is featured in Bulletin No. 373 just published by The National Supply Company.

The three-color, 12-page bulletin emphasizes the features of the C-150-B Slush Pump and shows and describes the operating parts in both power and fluid ends. The bulletin also illustrates the system of lubrication used in the pump and contains specifications and a performance chart, as well as dimensional drawings.

Copies of Bulletin No. 373 are available from The National Supply Company, Box 899A, Toledo, Ohio.

Oil Conservation Request Deferred

The Oil Producers Agency of California has announced that its request that the California State Legislature enact a bill to conserve the oil and gas resources of the state has been deferred. This was announced by President L. A. Cranson of the agency, who said plans for such legislation have been abandoned until the present emergency ceases to exist. The agency said that it was in keeping with Governor Warren's request that most of the legislative session be given over to measures dealing with the defense effort. The agency added that it has not abandoned the principle of conservation which it believes sound and in the best interests of the people, state and oil industry.

LAUGH THIS OFF!!

Wife: "Let's go out tonight and have some fun."

Hubby: "O.K., whoever gets home first be sure to leave the lights on."

Angler: "You've been standing there watching me for three hours. Why don't you try fishing yourself?"

Spectator: "Me? I ain't got the patience."

"Dad," asked the small boy, "why is a man not allowed to have more than one wife?"

"My son," replied the father, "when you are older you will realize that the law protects those who are incapable of protecting themselves."

"You know, Elaine, every time I see you, my heart beats faster. I feel the urge to do bigger and better things. I feel so strong and virile. Do you know what that means?"

Elaine: "Sure, it means that in about five minutes, I'm going to have to slap your face!"

"My son is going to be a mechanic."

"What makes you think so?"

"He has a knack for tinkering with a miss in the motor."

"Dad, does bigamy mean that a man has one wife too many?"

"Not necessarily, son. A man can have one wife too many and still not be a bigamist."

"Have you said your prayers, Johnnie?"

"Yes, Mom."

"Did you ask to be made a better boy?"

"Yes, and I also put in a good word for you and Dad."

"How's your new gal?"

"Not so good."

"Ahhh—you always were lucky!"

Two labor leaders in a hotel lobby in Washington following a conference watched as two pretty young girls met and kissed each other affectionately.

"There's another one of those things that is so unfair," remarked one morosely.

"What do you mean?" asked his companion.

"Women doing man's work," came the answer.

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